DOCUMENT RESUME

ED 047 094 VT 012 246

AUTHOR	Grinker, William J.; And Others
TITLE	Climbing the Job Ladder; A Study of Employee Advancement in Eleven Industries.
INSTITUTION	Shelly (E.F.) and Co., New York, N.Y.
SPONS AGENCY	American Foundation on Automation and Employment, Inc., New York, N.Y.; Ford Foundation, New York, N.Y.
PUB DATE	70
NOTE	269p.
AVAILABLE FROM	E.F. Shelley and Company, Inc., 415 Madison Avenue, New York, New York 10017 ($6.50)
EDRS PRICE	EDRS Price MF-$0.65 HC-$9.87
DESCRIPTORS	*Blue Collar Occupations, *Career Opportunities, Employment Opportunities, Entry Workers, Inplant Programs, Job Development, Labor Turnover, *Manpower Utilization, *Occupational Mobility, On the Job Training, *Promotion (Occupational), Technological Advancement

ABSTRACT

In order to measure the degree of upward mobility among nonsupervisory workers in private industry, a study was made of 11 major service, manufacturing, and retail sales industries. That investigation, which stressed the opportunities available to the average worker with normal motivation, is reviewed both in general and by industry in this report. The 11 industries selected provide a representative cross section of both industries and occupations. The study found that despite great disparity in upgrading and training opportunities among the 11 industries, both management and employees in the industries which lack the potential for upgrading are apathetic about improvement. The report concludes that outside impetus will be necessary to change these industries. (BH)

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A Study of Employee Advancement in Eleven Industries

Prepared for

AMERICAN FOUNDATION
ON AUTOMATION AND EMPLOYMENT, INC.

by

E. F. SHELLEY AND COMPANY, INC.
William J. Grinker
Donald D. Cooke
Arthur W. Kirsch

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E.F. SHELLEY AND COMPANY, INC.
NEW YORK AND WASHINGTON

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NOBLE OFFSET PRINTERS, INC.
NEW YORK 3, N. Y.

FOREWORD

The report was prepared by staff and consultants of E. F. Shelley and Company, Inc., under a contract with the American Foundation on Automation and Employment, Inc. made possible by a grant from The Ford Foundation. In addition to the authors, Mrs. Stella Frishberg and Mrs. Sheila Stein did initial research and prepared draft profiles on several industries, and both served as general assistants for the project. Mr. Keith Prouty, formerly Research Director of the United Rubber Workers and The Communications Workers of America, served as a technical consultant to the project and prepared draft profiles on two of the industries.

We are very grateful to the many management and labor officials who were interviewed by the project staff. Their insights were essential to a proper understanding of each industry.

The views expressed herein are solely those of the authors and do not necessarily reflect those of the American Foundation on Automation and Employment or The Ford Foundation.

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GENERAL REVIEW

This is a report about how non-supervisory people normally progress upwards in American private industry. By examining and describing these progressions in eleven major industries we hope to provide an information base for further consideration of the process widely referred to as "upgrading."

The report consists of a general review and eleven detailed industry profiles. The first section of the general review outlines the reasons for current interest in upgrading, and presents the *general findings* of the study. A broader view of these findings is then developed in the next four sections which describe upgrading in the context of the *nature of the work force*, the *employer's perspective*, the *employee's perspective*, and the *types of training provided and associated costs*. The general review concludes with some observations on the potential for further upgrading efforts.

General Findings

Upgrading, as Harvard's James R. Bright has pointed out, is subject to at least seven definitions, some of which relate only to movement or to more money.* This was confirmed by the differing interpretations placed on the concept during many interviews with management and union officials. For purposes of this study, upgrading is defined as the movement of a worker into a job requiring greater skill and experience, and usually paying more money.

A number of forces have converged on the American work place to kindle new concern for the need to upgrade employees. One evident source of attention stems from those who see a crucial need to equalize the employment status of Negroes and other minority groups with the white majority. This need has found partial solution in recent industry-government efforts to promote the hiring of hard core workers in the private sector. But whether Negroes are classified as hard core or not, they are generally at the bottom of the employment ladder. It is widely felt that they must move up the ladder and out of entry positions to make room for others who continue to find no stable employment, and, at the same time, that they must have the incentives which only genuine advancement opportunities can give.

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* James R. Bright, Automation and Management, (Boston, Massachusetts: Harvard Business School, Division of Research, 1958).

Furthermore, technology may increasingly press down on new workers and demand extraordinary retraining efforts for those with little education or skill.

High turnover and worker restlessness have added another pressure. Some observers think there might be correlations between worker dissatisfaction, disciplinary problems, poor product quality, and the lack of promotional ladders in many industries. Older workers who resent special programs directed at new employees might be less resentful if useful training programs were devised for the more senior people.

The concern here also involves important political considerations as both major parties struggle to find ways to counteract the discontent of "the forgotten Americans" -- a phrase generally implying the white, lower middle class industrial worker who flirted so longingly with the George Wallace-for-President drive in the last election and who may be even more swayed in the next. Perhaps, the theory goes, this discontent can be ameliorated by providing these workers with greater upgrading opportunities.

Many employers complain now of unusual difficulty in filling openings, especially at the top and bottom levels. As some commentators see it, more applicants would be willing to enter at the bottom if they could see progressions up; and skills shortages formerly satisfied by outside hiring or by the more ambitious semi-skilled employees might then be met with special training for those people from the lower skilled ranks who are considered unqualified.

Spanning all of these attempts to relate upgrading to practical employement problems is the notion of business as educator. Arguing in somewhat abstract but urgent terms, this viewpoint beseeches business to deflect some of its productive energy toward general enrichment programs for employees in order to somehow counteract the dissatisfaction with institutions now rampant among students and blacks, a dissatisfaction which is predicted to spread to the industrial situation.

The principal thrust of our investigation was to learn what happens to the typical worker, one with only average career ambitions, after he is hired. We dealt only with the "production" work force, those non-supervisory people whose jobs contribute directly to the output of an industry's goods or services.

It was found that some industries operate with a personnel momentum that offers most workers a continuing upgrading opportunity in the sense of our definition.

Others of those studied could give only a part of the work force this progression, and still others offered it to so few that it was almost nonexistent.

We further learned that, outside of the technological evolution occuring in all the industries studied, there is nothing of major significance now taking place that will change occupational structures and/or upgrading potentials. The continuous process of technological development, while in the long run crucial to job structures and skill needs, has little short term impact on changing industry upgrading and training practices. This is because the introduction of technology normally takes place slowly enough to allow industry to provide any necessary training as part of its normal activities. The gradualness of the change also usually prevents any sudden large scale worker displacement.

Furthermore, there is no current evidence of any intention by management or labor to alter present training and upgrading practices in significant ways. Because neither management nor workers feel that upgrading is sufficiently central to their problems to warrant substantive change, only through some extraordinary outside force or persuasion will significantly more upgrading opportunities be developed.

This is not to say that the concerns with upgrading outlined briefly above are without merit. Indeed, a strong case could be made for each point, and some of the ideas could have impact, especially in those areas where critical manpower problems make the structure especially vulnerable to change. In order to assess the potential for alterations in the current system, we examine the essential forces in greater detail in the following sections.

Nature of The Work Force

The profiles which follow this general review deal with upgrading characteristics and potentials in eleven industries -- Motor Vehicles and Parts, Basic Steel, Rubber Tires, Apparel, Printing, Air Transportation, Telephone Communications, Department and Variety Stores, Commercial Banking, Insurance Carriers, and Hotels and Motels. These industries employ 8.65 million people or about 17% of the U. S. work force exclusive of farm, construction and government workers. The following table indicates some general employee characteristics in these industries:

SAMPLE EMPLOYEE CHARACTERISTICS IN SELECTED INDUSTRIES

INDUSTRY	NUMBER OF WAGE AND SALARY WORKERS 1)	% THAT ARE PRODUCTION WORKERS 2)	% THAT ARE MINORITY GROUP 3)	% THAT ARE MALE 4)	AVERAGE HR'LY SALARY (U.S. Average Wage: $2.68) 5)	% UNION ORGANIZED 6)
Manufacturing						
A. Durable Goods						
MOTOR VEHICLES	818,000	78%	15%	92%	$3.85	90-100%
BASIC STEEL	580,000	82%	12%	97%	3.74	90-100%
B. Non-Durable Goods						
RUBBER TIRES	102,000	71%	7%	88%	4.02	90-100%
APPAREL	1,345,000	89%	20% 8)	20%	2.03	80- 90%
PRINTING 7)	981,000	63%	7%	71%	3.28	40- 50%
Transportation, Communications & Utilities						
AIR TRANSPORTATION	206,000	80% 8)	9%	75%	(N/A) 9)	50- 60%
TELEPHONE COMMUNICATIONS	735,000	80%	7%	45%	3.04	90-100%
Wholesale and Retail Trade						
DEPARTMENT and VARIETY STORES	1,626,000	86%	10%	32%	2.06	20- 30%
Finance, Insurance & Real Estate						
COMMERCIAL BANKING	791,000	84%	5%	60%	2.33	0- 10%
INSURANCE CARRIERS	891,000	71%	5%	51%	2.78	0- 10%
Service						
HOTELS & MOTELS	578,000	93%	39%	51%	1.55 10)	50- 60%

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1) Information extracted from U.S. Bureau of Labor Statistics (BLS) data for 1965. The number of workers in the selected industries represent 21.2% of the total wage and salary employment in the manufacturing categories and 20.1% of those workers in the non-manufacturing categories.

2) Information extracted from BLS data for 1965. In non-manufacturing industries the percentage represents non-supervisory workers.

3) Information extracted from U.S. Equal Opportunity Commission data for 1966. The percentage includes Negroes, Spanish surname, American Indians and Orientals.

4) Information extracted from BLS data for 1965.

5) Information extracted from BLS data for 1967.

6) Staff estimate derived from union supplied information.

7) Statistics include Publishing segment of the industry.

8) Staff estimate

9) Figures are not available. Staff estimates the average wage at slightly above the U. S. average.

10) This does not include tips or the value of lodging, meals or other fringe benefits.

The focus of our study is on that segment of the labor force which in manufacturing is defined as the production work force and in non-manufacturing includes all non-supervisory personnel. This group comprises 70% to 80% of the work force in most industries. Normally it includes a growing 15% to 20% skilled workers, a declining 5% to 10% unskilled laborers and the remaining majority, the bulk of whom are classified as unskilled or semi-skilled operatives, clerical, service or sales workers, depending on the nature of goods or services produced by the particular industry.

The vast majority of the work force from semi-skilled up needs a high school diploma to enter the job although where labor markets are tight this requirement is being dropped -- at least at the lower ends of the skill scale. Workers are almost all male in heavy manufacturing industries, in the skilled crafts and in laboring positions throughout all industries. Outside of these classifications the percentage of women employed in the unskilled and semi-skilled area will range from 20% to 40% in most light manufacturing, from 40% to 60% in most white collar industries and up to 80% in Apparel manufacturing. Except in Insurance and Banking, where there is severe underrepresentation, Negro non-supervisory employment generally matches the percentage which that minority forms in the total population -- 10% to 15%. However, minorities are substantially overrepresented in the lower end of the skill ladders and lower paying industries (such as Apparel and Hotels) and are severely underrepresented in the skilled crafts occupations.

The Employer's Perspective

Each of the eleven industries studied tries to operate in a manner it believes most efficient. Each has historical patterns of jobs in its facilities which it considers will effectively turn out its product or service. Even if an industry wanted to alter significantly certain job structures quickly, these patterns have been enforced by unionism and entrenchment of existing workers to the extent that they are almost immutable without cataclysmic consequences, or so most employers and union leaders believe. As previously noted, changing technology usually requires gradual alteration of job structures.

The introduction of new technological methods normally creates both jobs which are less complex as the work is made easier and others requiring greater skill as the overseeing and maintenance of equipment becomes more complicated. This process has the effect of deskilling some workers and upgrading others. Such changes are generally approved by both management and labor because they lead to increased productivity. But even allowing for these changes the basic industrial process is only nominally affected in the short run.

In the following paragraphs we briefly describe the industrial process in each of the eleven industries studied and indicate how the process affects the upgrading potential. For purposes of convenience, the upgrading potential in these industries is described in terms of a pyramid. When a normal progression sequence includes six or more discernible steps and upgrading opportunities on a skill ladder, it is termed a "long, narrow" pyramid. "Moderate" pyramids are those which provide progressions ranging from 3 to 5 steps in a promotion sequence. Some employment provides almost no chance for advancement -- at most two steps -- and such situations are called "flat" pyramid progressions.

The Steel Industry is a good example of the long, narrow pyramid progression. Steelmaking requires a wide range of skills which can be aligned from a laboring entry level position up through a highly skilled position at the other end, and with an equitable distribution of intermediate jobs which would prepare the worker for the position immediately ahead. This kind of progression is most easily adapted to industries where the process requires development of distinctly different duties among different departments and where the skills performed are not easily applicable to other areas of the business.

Besides Steel, fairly separable and distinct unit structures exist in the Rubber Tire Industry, and to a large extent in Banking and Insurance. All of these industries include long, narrow upgrading pyramids within the individual units. Printing, Air Transportation, Telephone Communications, Department Store Retailing and the Hotel Industry also break the work force into groups that have limited cross-over possibilities, but the upgrading process is not similar to the previously described industries for a variety of reasons.

One such reason is the effect of the craft system as exemplified by the Printing Industry. Craft occupations stand apart from the general discussions because of the nature of training craftsmen -- apprenticeship leading to journeyman status. Apprenticeship or apprentice-like progressions are typical where the worker is part of a process which requires highly skilled technicians. Other manufacturing industries studied also have a certain percentage of craftsmen, from about 5% in Apparel to a more typical 25% in Steel, who follow training and employment patterns similar to the printing craftsmen.

Air Transportation and Telephone Communications also have need for large percentages (between 40% and 45%) of employees who are or are closely akin to craftsmen in their skill requirements. They are working in or toward skilled jobs at the outset, and thus have rather limited progressions in their occupations. These two industries also have large numbers of clerical or white collar occupations in which upgrading potential exists at a moderately pyramiding level.

In Department Stores, there are gradations in the three prime areas of store operations (sales, support, and clerical) but there is no certain relationship between the skills learned at the bottom and those learned at the top, even within the departments. A structure exists which does not provide genuine upgrading opportunity. The Hotel Industry also requires sharply different units to deliver its services, but a majority of employees are in units that pyramid so flatly (one or two steps from the entry positions) that no meaningful progression exists. Both Hotels and Department Stores have a substantial number of white collar workers -- between 10% and 15% -- whose progression potential resembles that in Airlines and Communications.

A prime ingredient of the process which allows for upgrading is that it be fairly rigidly separated into skill groups. Even though these groups or units offer an upgrading potential which ranges from great to little they must at least exist in the first instance. The two industries found to have the least opportunities for the bulk of entry level workers were Motor Vehicles and Apparel -- mass producers with tasks simplified to the point that almost anyone, once trained, can perform the tasks of other employees throughout the facility. Ironically the greater the skill transferability of one job for another and the greater capability the employee has to move to another section of the operation, the less is his upgrading opportunity.

We undertook an analysis of the jobs in each industry to ascertain the upgrading potential for workers, based on the normal job progressions. The following table indicates the combined industry results of this analysis.

Upgrading Category	Number of Non-Supervisory Workers	% Male	% of Workers to Total*
Craft or Craft Type Progression	1,350,000	95%	19%
Long, Narrow Pyramid Progressions - at least 6 steps normally	1,235,000	68%	18%
Moderate Pyramid Progressions - 3 to 5 steps normally	2,045,000	39%	29%
Flat Pyramid Progressions - at most 2 steps normally	2,390,000	36%	34%
	7,020,000	54% (Av.)	100%

Those jobs listed above as flat pyramid progressions are the equivalent of what could be termed "dead-end" jobs. We have defined such jobs as being those which allow a minimum opportunity for the exercise of independent judgement and which do not provide a reasonable expectation of advancement either through formal or informal job-related training. Such jobs are always either unskilled or semi-skilled and usually pay relatively low wages. Of the 2,390,000 jobs in this category, approximately eight out of nine people work at entry level and about one job in nine is one step higher, usually a working supervisor.

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* Since the industries studied are reasonably representative, we believe that the percentages would hold true for the additional 28 million workers included in the major industrial divisions covered by the survey as listed in the table on page 7.

Once the nature of the upgrading progression is defined by the industrial process, the question of who benefits, if anyone, becomes paramount. It is here that the institutionalizing influence of seniority rules comes into play. Seniority cuts both ways on upgrading. It can mean that job progressions, if they exist, will automatically be available to the junior workers if they stay around long enough -- or seniority can freeze the structure so that there is little flexibility to reward ability or those impatient to advance. Seniority on the one hand can force management to specially train less capable people in line for a job and, on the other, simplify the selection process, since no serious disputes can arise from promoting the longer service worker. Regardless of these effects, when seniority is strong it always restricts the entry ports available into a company's internal job structure.

In highly unionized industries, with strict seniority provisions for advancement, there is almost no movement from outside into jobs, other than at the base level. This is true, for example, in the Steel and Rubber Industries and in the skill job classifications in the Telephone Industry. In such industries where shortages occur at more highly skilled job levels, attempts are normally made to overcome the problem by speeding up the progression sequence rather than by hiring-in. Labor market factors play more of a part where seniority is not as important, such as in the Insurance or Hotel Industries; but even in such industries, the experience a person has gained within a particular company quite naturally comes to play an important part in judging advancement potential. Furthermore, the higher a person moves up the skill ladder in non-supervisory job progressions, the more important his company experiences become and the less likelihood there is that hiring-in will be used to fill a vacancy. It should also be emphasized that more attention is paid to potential ability as skill level requirements increase. This is true even in highly unionized industries where seniority is normally the crucial consideration. In such situations the ability considerations are often rather informal: a senior person will be given first crack at a job but may not go after it because of a belief, sometimes encouraged by the company, that he won't be able to handle it.

As we have tried to indicate by the foregoing discussion, the production process for particular goods or services and the selection system of workers for advancement are relatively fixed. Sometimes these methods give workers a good deal of opportunity for upgrading and sometimes very little. But management feels little compulsion to change the method solely to affect upgrading because it can neither identify nor correlate its personnel problems with the presence or absence of upgrading opportunity. These problems might be identified as (1) turnover and absenteeism, (2) poor quality of workmanship, (3) poor worker discipline and (4) skill shortages. In every case management can more credibly relate the cause to forces aside from the advancement opportunities available in the working place.

For instance, the first thing on which many management people blame their high turnover is the tight labor market that exists in almost every urban area. The manager can much more easily show that employment stabilizes, workers perform more satisfactorily, and needed skills can be obtained when there is less opportunity for mobility, when jobs become scarcer.

Other officials talk about a general malaise in the country, that workers aren't what they used to be and that this problem awaits some undefined leavening. One answer, to some, involves increased emphasis on training supervisors, and on making the work environment more pleasing. One thoughtful labor relations official said he could much more easily relate his personnel problems directly to how much overtime his plant was running, how much vacation benefit his company was granting, or, of course, his wage scale, than to any question involving promotions.

The coolness with which industry has reacted to the federal government's attempt to subsidize special upgrading efforts as part of the Department of Labor's MA-5 contract series is a clear indication of their lack of interest in upgrading as a solution to their personnel problems. The MA-5 program is still in its infancy and its final effectiveness cannot be confidently predicted. However, our interviews with management definitely indicate that while there is a smattering of interest in the potential of the program, actual present activity is negligible.

The Employee's Perspective

In looking at upgrading from the employee's viewpoint it must be noted at the outset that the worker who has a strong desire to advance in even the most "dead-end" industries usually can satisfy such ambitions eventually. This often means, to be sure, that he is propelled by his own initiative in switching jobs in the industry, in getting outside training on his own, in making special efforts to impress management with a desire to be upgraded. But this man is obviously the exception rather than the rule; and even ambitious people, especially many minority group members, have found obstacles so great in some industries that their aspirations have been thwarted. In the industrial categories covered by our study, we can deduce over three and three-quarter million people in dead-end jobs plus additional uncounted millions in jobs that offer advancement opportunities which go unused. Thus, while the man who manages to break out of a normal pattern is not the concern of this report, his ability to find satisfaction does reflect a central finding referred to earlier -- either most workers are not very interested in moving up or they have not clearly articulated the idea of lack of opportunity as a significant grievance against an industry.

A survey of worker attitudes was outside the reach of this project, but interviews with union leaders at the grass roots levels -- if they can be taken as fairly reflective of their constituencies' interests -- revealed little or no concern with the potential for promotion in any industry. The way a company has its jobs structured to perform its function is a fact of life, and not really to be bargained about except in negative ways -- such as in infringements on seniority.

Some union officials did voice concern with automation's encroachments into areas where workers are likely to be displaced or their functions altered. Others referred to alleged violations of seniority rights in manning new equipment, but in no case was there a pressure felt from workers clamoring to get ahead.

In some industries this lack of interest is a function of the type of worker attracted to it. In the Banking and Insurance Industries, for instance, a large percentage of the low level duties are performed by young women who are not really very serious about a career in an office.

The Retail Merchandising business depends to a great extent on large numbers of women whose main interest is in supplementing family incomes by either part-time or full-time work and who give little thought to moving up in the organization. Jobs for women in both Apparel and Hotels offer such low wages and limited advancement opportunity that they usually attract those workers who have been unable to get other work or for whom sewing and domestic skills come easier than dealing with the public or working in an office. These women don't emphasize career possibilities when selecting their work and don't expect more than the incremental yearly raises and benefits gained by their union.

Air Transportation technically provides little opportunity for movement in a large percentage of jobs, but many of its workers are quasi-professionals or craftsmen at the outset and carry enough prestige to minimize great concern about ability to get ahead. Even in the unskilled or semiskilled service areas, perhaps because of the glamour associated with air travel, employment is relatively stable and there is little pressure on management to be concerned with upgrading. Printing has had a problem attracting new people but it is doubtful whether this can be charged to a lack of upgrading potential. More likely it is because the type of person that the industry is used to hiring is now more inclined to continue his education or pursue more glamorous career opportunities.

The Automobile Industry suffers very high turnover in some of its major production centers, but union officials were reluctant to associate the industry's low advancement potential with worker dissatisfaction. The repetitive, hectic pace of the work, or the lack of overtime in a given plant, or any number of other factors are more clearly the reasons for high turnover, in their view. It should be noted here, however, that the issue of upgrading has been raised in this industry more noticeably than in any other by the demands of militant black factions.

It is the Auto Industry also which most highlights the effects of the modern industrial process on the production worker psyche. In the famous Hawthorne studies of workers at Western Electric it was pointed out that although the worker "participates least in the technical organization, he bears the brunt of most of its activities." He is not only "asked to accommodate himself to changes which he does not initiate, but also many of the changes deprive him of those very things which give meaning and significance to his work."*

The hallmark of the craftsman -- a pride in his skill -- does not accrue to most workers involved with the modern industrial process. Within the industrial setting a lack of opportunity to advance is thought by psychologists to be one of the factors which create worker dissatisfaction. But at most this is only one of a number of interrelated factors which limit the employee's ability to see any real usefulness or purpose in his work.

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* F. J. Roethlisberger and W. J. Dickson, Management and the Worker, (Cambridge, Massachusetts: Harvard University Press, 1939. The results of the Hawthorne studies were substantiated by the essay "contest" conducted at General Motors in 1947 which yielded 175,000 individual essays on "My Job and Why I Like It." For further discussion, see Peter F. Drucker, The New Society, (New York: Harper & Row Torchbooks, 1962).

The current commentaries on the mood of the American work force are well known. Aside from the usual impatience with wages, working conditions, benefits, and the boss, dissatisfaction among many wage earners has broadened to include facets of society outside the work situation -- especially concern over the apparent erosion of such verities as patriotism and self-reliance, and a yearning for "law and order." Some of this restiveness has been spawned by resentment and hostility toward blacks who have been given extra help to hold jobs which often are equal to those of more senior white workers. But these more senior employees have not yet articulated a resentment which focuses on their own inability to get ahead.

Types of Training Provided and Associated Costs

Almost all of the training for upgrading in private industry, except in craft and highly skilled occupations, takes place on the job (OJT) as part of the production process. It is relatively informal and usually of the "show and tell" variety. There are a number of advantages to this informal OJT from a company's point of view. Many of these reasons also work to the advantage of the employee. It is relatively inexpensive -- especially when it takes place by osmosis or by short demonstration. It is also more economical, because normally the additional skills required can be learned very quickly and the worker is not taken away from his job. It is, in effect, individualized instruction since the worker learns at a pace geared to his individual ability. It enables the trainer to impart subtle changes which have taken place in the work situation, in the use of equipment, or in the nature of the job. Finally, it provides the employer with a reservoir of skills available either for plant expansion or contraction.

More formal training for the same jobs will normally take place when a company suddenly encounters severe labor shortages. Such a situation is relatively rare. It is most likely to occur when a new plant location is opened or existing facilities are greatly expanded. Radical departures in technology, which in the nature of the production process are quite unusual, will also result in formal training. A very tight labor market may on occasion force companies to introduce formal training to speed up the process of worker skill gathering. To a large extent this latter factor appears to be a touchstone of the more formalized hard core training programs for entry level employees. But, generally, industry apparently prefers to increase overtime or improvise in the use of its work force rather than get involved in more formal training techniques for upgrading.

The following table outlines the normal training procedures and selected manpower concerns of management and labor for the eleven industries studied:

INDUSTRY	USUAL SELECTION METHODS	USUAL TYPE OF TRAINING PROVIDED
MOTOR VEHICLES	Posting and bidding is normal, but varies depending on local agreement. Seniority is primary determinant. Apprentices selected on basis of written test and worker background.	Informal OJT conducted during working hours most often by foreman or 1st. line supervisor. Apprentice training combination of classroom and formal OJT handled by company training department.
BASIC STEEL	Posting and bidding is normal. Departmental seniority is primary determinant except at the highest levels. Apprentice openings posted and tests given for selection.	Informal OJT conducted during working hours by co-workers and foreman. Apprentice training is combination of classroom and formal OJT. Some effort to upgrade skills of craftsmen through classroom training after hours.
RUBBER TIRES	Posting and bidding with departmental seniority primary basis for selection.	Informal OJT conducted during working hours by foreman, 1st. line supervisors and co-workers except for apprentices who are handled as in auto and steel.
APPAREL	No industry-wide pattern discernable. Cutters often upgraded on basis of seniority in large shops. No real upward progression for finishers or sewers.	Informal OJT during working hours. Some formal OJT in larger shops while workers learn new processes.
PRINTING	Selection of apprentices based upon formal testing and ability first and seniority second.	In union shops, generally a combination of OJT, classroom and correspondence courses often in off-cite centers or in local public or private schools. In non-union, OJT is prevalent.
AIR TRANSPORTATION	For union workers seniority by geographical location is primary. For non-union workers ability, measured by supervisor's evaluation is most common.	Flight service personnel receive extensive classroom training. Most maintenance and ramp service workers and agents trained through combination of formal off-line orientation and OJT. Classroom training conducted in special facility by company training staff. OJT by 1st. line supervisor or foreman.
TELEPHONE	Seniority is predominant but weight of ability varies from company to company. Posting and bidding is common selection mechanism.	Formal classroom training is a prime component of employee development program both for entry level and subsequent training. Training is conducted in special facilities by company's central training department. This is supported by OJT conducted by 1st. line supervisor under guidance of training department.
DEPARTMENT AND VARIETY STORES	Ability measured by supervisor's evaluation is primary, with seniority second.	Little formal training beyond the initial orientation period carried out by training department in special classroom sessions.
COMMERCIAL BANKING	Ability measured by supervisor's evaluation is primary. Seniority is important in moves through lower levels. Selection decisions handled by central personnel office.	Formal classroom used for initial teller training generally carried on by the bank's training department in special facility. Most subsequent training for all occupations is OJT combined with vocational enrichment programs through the American Institute of Banking (AIB) and tuition remission. OJT is handled by 1st. line supervisor. AIB instruction is voluntary, after hours.
INSURANCE CARRIERS	Ability measured by supervisor's evaluation is primary. Seniority is important in the moves through the lower levels. Selection generally made by the department head.	Primarily OJT with the exception of certain skills such as correspondence or EDP training carried on by company's training department. Industry provides extensive vocational enrichment through industry associations and tuition remission.
HOTELS AND MOTELS	Ability measured by supervisor's evaluation.	Almost exclusively OJT, conducted by first line supervisor.

INDUSTRY CONCERNS AND ACTIVITIES RELATED TO UPGRADING

Primary concern is keeping unskilled employees. Present thought is that turnover and other examples of worker restlessness result from many interrelated factors of which lack of opportunity is one. Present thrust of management and union: improving economic benefits and working conditions.

Management concerned about ability to prepare present work force for increased skill requirements changing technology demands. Industry beginning to increase orientation periods, and enrich educational background of work force through after hours remedial educational programs. Union's basic concern is effect technological changes will have on employment levels and job content.

Management looking toward technology to bring down high labor costs. The automatic tire building machine is coming closer to reality and both labor and management believe it will have significant impact on industry's occupational structure and work force.

Management concerned about drying up of traditional labor supplies and high turnover. The continuing move toward deskilling of stitching jobs attempts to overcome this labor shortage. Union believes personnel problems can be solved by improving economic benefits for workers.

Management and union feel that training is adequate to meet needs. There is increasing concern about industry's inability to attract sufficient numbers of young persons qualified to accept training. Lack of interest blamed on long indenture period and greater attraction of college.

Management sees no real upgrading problem. Industry adjusts to high turnover and has not experienced difficulty in recruiting persons for all but a few low rated maintenance jobs.

Management sees problem in increasing competition with other electronic related industries for manpower. This, compounded by high turnover, has caused concern among labor and management officials, but solutions offered at present do not include changing upgrading procesures

Increase in the number of part-timers has considerably dimmed both management and worker attention to promotion and upgrading issues. Management looks to colleges to supply supervisory personnel who formerly came up through ranks.

Basic concern is dwindling supply of qualified workers. Management has been seeking new supplies of manpower and adjusting their education programs to meet the needs of new, less qualified workers. However, officials indicate that technology may ease manpower shortage within the next ten years.

Management expects an occupational shift away from relatively low skill clerical jobs to more high skill machine-related occupations. Normal attrition plus skills upgrading will take care of work force requirement with relatively little difficulty.

Several larger hotel chains have begun to think about upgrading as related to their hard core programs. There has recently been a movement toward the breakdown of departmental progressions which will permit more mobility for employees.

Since so much of training for upgrading is of the informal, on-the-job variety, companies have not isolated the cost of such activity. Rather it is considered part of the production expense. The few figures which are available do little more than illustrate that reliable figures are unattainable. Thus, an estimate of training and education costs in the Insurance Industry, given by a knowledgeable industry official, was about $12 million annually, of which a large portion went for tuition reimbursement; while an estimate for the same type of training for about the same number of employees in Banking came to $31 million. Two different spokesmen in the Apparel Industry estimated entry level training costs (practically the only training there is in that industry): one set the cost at $25 million and the other at $40 million.

The Insurance and Banking estimates cover only off-the-job training; OJT could not be estimated accurately. On the other hand, both Apparel Industry spokesmen estimated the total cost in wages paid to those workers in training on the job, but without deducting from their cost estimate the value of the goods produced.

The only industry surveyed that is actually required to keep records of training costs in total is the Airlines Industry. Each airline must submit quarterly reports to the federal government reflecting payroll costs paid to both trainers and trainees. A tabulation of these figures indicates a total training cost for that industry of $125,764,000 in 1968. This amount is equal to about 15% of the industry's net operating income. We know that this figure is exclusive of equipment, plant and supply costs, which are extensive in Air Transportation; but even in this industry it is not possible to indicate exactly what the costs mean since there is no uniformity among accounting techniques required of the airlines in cost computation.

Potential for Further Upgrading Efforts

Thus far we have explored the reasons for the interest in developing greater upgrading opportunities, the reasons for apparent employer and employee disinterest in the issue, and the type of training for upgrading which is normally offered. The question remains as to whether there is potential and need for increasing upgrading opportunities and, if so, what kind of programs might be developed.

We believe that there are certain danger signs which indicate a need for more imaginative planning and programming in the area of skills upgrading. Our investigation of industries almost uniformly confirmed that the introduction of new technology is being used to break down skill levels -- to make things simpler -- and that, coincidentally, certain additional, more high skill maintenance or operating jobs are being created. This is opening a chasm between low skill and higher skill jobs, which is becoming increasingly difficult for an individual worker to bridge through traditional, on-the-job training techniques. Also, newly imposed requirements for higher education in first-line management and technical positions cut off such jobs from those workers in the production work force with limited educational backgrounds.

Furthermore, the introduction of hard core workers and minority group members into the lower levels of the mainstream of American economic life is creating pressures from the blacks who want to move up in the system and resentment among whites over special favoritism accorded to blacks. For these reasons, evidences of job dissatisfaction by those at the lower level seem destined to increase.

These problems detract from maximum utilization of manpower resources and conflict with the need for a stable work force. As such, they should be a direct concern of government since they transcend individual industry interest, and their solution should be part of a national manpower policy. The federal government, through the Department of Labor's MA-5 program and through certain experimental efforts, is beginning to develop a pattern of activity in the area; and some Labor Department officials see upgrading as a crucial issue for the 70's. Given the current state of the country's economic health and current management attitudes, it is not very likely that current policies of voluntarism will have much impact. While the specter of government coercion to force industry activity would probably be unpalatable to most people, movement toward new upgrading initiatives might be acceptable if it came through the collective bargaining process.

There is strong evidence that because many of the labor unions' goals have been accomplished in the past thirty years, they are in need of new and imaginative issues to prevent the erosion of their vitality and imagination. Thus, facing increasingly rebellious factions in their ranks, and contributing little energy toward pacifying the turbulence of the times, the labor movement might find upgrading an appealing objective to pursue. It is altogether possible that the unions could direct their resources to developing programs for advancement that could go far toward elimating worker discontent. Labor could thus arm itself with an issue that would greatly rally the support of its younger and impatient membership. Thus far, on the rare occasions when labor unions have become interested in the possibilities of upgrading programs as a bargaining issue, most notably in the Steel and

Hotel Industries, there has been real movement to institute such programs.

If the unions successfully develop this issue, there is good reason to believe that management might listen with some interest. Thus, despite their minimal interest in changing upgrading patterns, it appears that management is well aware of the currents of dissatisfaction among the work force. It would welcome fresh thinking which could ameliorate the problem.

Within private industry there are at least two basic directions which can be pursued to improve skills upgrading efforts. The first is the possibility of speeding up movement within the current progression sequence where it exists at all by more formal training efforts and by limited job restructuring. This sort of effort is the basic thrust of the Department of Labor's current experimental projects and apparently forms the basis for its future plans in the field. It has been most successful in a period of severe labor shortage, where employers see the need to speed up a process which goes on anyway, and the union has agreed on a selection procedure outside the normal post and bid seniority system.

The second possibility is to develop formal internal mechanisms which provide training for skills upgrading outside of normal job progressions. Hourly workers, for instance, might be considered for openings in white collar areas. Also, greater effort to assist people to pass apprentice tests could allow for more upward internal movement. There are, at present, occasional indications that industry will pay the price to accomplish this, again when skill shortages are severe or when the union has demanded it.

Standing somewhat apart from direct industry capability, but operating in concert with it, the recent expansion of the post-high school junior and technical colleges may serve as an important base which industry can use to build their workers' skills to meet future manpower needs. Local industry leaders are called upon to assist in the selection of broad curricular areas at the time such institutions are being established. But for the most part, a line of communication between local industry and the educational institutions, which would permit continuing adjustment of the schools' offerings to meet the needs of the community, have not been developed. Without this cooperative effort the schools tend rapidly to lose relevance, both to local industry and to the communities they serve.

The initiation of cooperative education programs that harness the expertise of industry in curriculum planning and allow for the provision of on-going advice and ccuncil to the institution's staff by participating industry staff, appear to go far in improving the relevance and the quality of instruction. However, in order for the programs to appeal to the work force the institution's efforts must be tied into the promotion process, thus providing workers with an incentive and opportunity for improvement that does not presently exist.

METHODOLOGY

The first major task was selection of the industries to be studied. The purpose of the selection process was to provide a representative cross section of both industries and occupations which could be covered by the time and resources available for the study.

Besides insuring that the industries represent a reasonable percentage of numbers and types of production or non-supervisory employees, we also attempted to assure a variety in such factors as union strength, rates of technological change, labor or capital intensity, and racial and sexual make-up of the work force.

After the initial selection, extensive library research was undertaken to gather information on industry characteristics which would have a significant bearing on employment patterns. This research also enabled staff investigators to get a better understanding of the way the industries operated. Library material found significant to the study of each industry is included in a bibliography at the conclusion of each profile. Library material of general significance is included at the end of the report. The library research phase of the study also included a search for information on training and upgrading techniques used in five industrialized foreign countries. The results of this research are included in a summary of foreign efforts on page 249 of this report.

Research was accompanied by discussions with trade association officials, international labor union officials and other knowledgeable persons, to supplement or explain written information, and to learn of specific companies that would be appropriately representative for field visits. As originally proposed, we attempted to include in field visits different sizes and types of operations which were pre-selected as fairly typical of the industry. Generally, visits in each industry included a large (over 10,000 employees), a medium sized (1,000 to 10,000 employees), and a small (100 to 1,000 employees) operation. But this varied according to the nature of the industry. For example, in the Motor Vehicle Industry visits were restricted to the "big three" automakers, while in the Apparel and Printing Industries, where smaller operations are most representative, there were several visits to firms employing under 100 people. In total, 35 companies were visited, and discussions were held with 20 local union officials representing workers at the various companies visited.

It must be emphasized that since on-site inquiries were limited to only a few companies in each industry, there are undoubtedly variations of personnel practices, which have not been included. But since this report is intended to provide a general outline of how workers progress, we are confident that our information represents the usual pattern within particular industries.

Because most industry and labor officials regarded the subject of our inquiry as a rather sensitive area, investigators encountered several situations in which cooperation was minimal. While people were by and large cooperative, the most candid discussions occurred when some previous personal contact had been established. Even in such instances, however, company officials were generally unwilling or unable to provide some information to the staff, especially that pertaining to training costs. An outline follows of the major points covered in the study of each industry.

RESEARCH OUTLINE

I General Industry Characteristics

1. Definition of the industry, modifying the SIC description where necessary.
2. Size of separate establishments, on average, and geographic distribution.
3. Production workers as % of industry's workforce and trends toward expansion or contraction.
4. Strength of union.
5. Degree of Technological Change (including output per man-hour).

6. Ethnic Make-Up.
7. Male/Female Make-Up.
8. Blue Collar/White Collar Make-Up.
9. Wage Levels.
10. Labor Intensity.
11. Turnover Rates.
12. Overtime Hours.

II How People Move in Each Industry.

1. General description of technological and operational environment.
2. Occupational breakdowns and typical promotion sequences.
3. Entry level selection techniques.
4. Weight of seniority in advancement.
5. Weight of ability and how it is evaluated.
6. Selection methods used (bid-posting, recommendation, etc.)
7. Type of training for normal advancement (OJT, formal, by outside vendors, etc.)
8. Training for apprentices (if applicable).
9. Training: where and when.
10. Costs of training.
11. Effectiveness measures of training.

III Outlook (problem areas, shortcomings).

1. Adequacy of current training effort to meet future needs (emphasis on current and anticipated changes in technology and in the work force.)

2. Future needs: are they well defined?

3. Impact of training needs on labor relations and collective bargaining.

4. Adequacy of industry's ability to conduct needed training.

5. Adequacy of vocational schools or intra-industry manpower stealing to satisty skills shortages.

6. Effect of current or planned training on minority group advancement.

MOTOR VEHICLES AND PARTS

The auto industry epitomizes mass production. More than 70% of the work force has its moves detailed down to the second, operates in set work stations, and performs generally short-cycle, repetitive tasks as the workpiece moves before them. Since some work stations require more skill than others, unskilled/semi-skilled distinctions are made difficult. The pressures of the assembly line, whether for completed automobiles or component parts, lends itself to measurement of a man's work-hour like few other industries. To this end, most workers are programmed to giving a full 480 minutes of work on a standard shift (they get 12 minutes of break every four hours but their work goes on via a "relief man"). Time and motion studies are the fulcrum upon which management makes changes in a man's tasks, makes adjustments when new products are introduced (such as at model changeover), or determines that certain assemblers or machine operators are not putting in a fully productive hour. These efforts by management to enforce its production standards are probably the most volatile force in the industry and create more strikes than the combination of the other two issues strikeable during the life of the contract (health & safety and pay rates for new jobs).

Within the context of mass production efficiency severe problems exist. Turnover rates are very high and getting higher. Between 40 and 42% of entry level employees stay for one year at one big producer, and this kind of retention is experienced by other automakers in tight labor markets, improving in less tight employment areas but not to the extent that anyone regards the high turnover complacently. The rate of quits and discharges is highest in the first month, decreases somewhat thereafter, and begins then to stabilize in the ninth month to the end of the first year.

Furthermore, both union and management officials note certain new forms of restiveness among employees, which are related largely to basic social issues. These have manifested themselves in black workers' demands for better upgrading opportunities and white workers' resentment of special company efforts to hire and train the hard core unemployed.

Tight labor markets and conflicting social interests have caused problems for the industry; but there is also, in a narrower context, a certain employee dissatisfaction which might stem from the nature of assembly line work. Most people in auto plants can expect little promotion opportunity to be offered, and their repetitive jobs have been criticized for providing only security and boredom in knowing that basically the same things will be required day after day. Although the process is a favorite target of industrial psychologists, and has certainly come into sharper question as labor markets tighten, there is very little serious thought now being given to how it could be changed.

In discussing the occupational structure and upgrading process in the industry, it is natural to focus on the role of three major auto producers and the United Auto Workers Union. The three producers, General Motors, Ford and Chrysler, produce over 90% of all motor vehicles manufactured in this country and UAW represents almost all auto production workers and a majority of part supplier production workers. According to the Standard Industrial Classification Manual, the industry officially includes, "establishments engaged primarily in the manufacture or assembly of complete passenger automobiles, car bodies, trucks, commercial cars and buses, special purpose motor vehicles, and motor vehicle parts and accessories."

In 1963 more than 80% of the industry's production workers were employed in plants employing more than 1,000 workers, and slightly more than 60% worked in plants of more than 2,500. (This figure would be even higher for the Big Three.) Forty percent of the industry's total production work force were employed in Michigan, and another 30% worked in Ohio (for the biggest of the group), Indiana, and New York.

From 1960 through February 1968 industry employment rose from 658,000 to 809,000. During this time the practically all male production work force consistently made up approximately 80% of the total work force. Approximately 86% of production workers are craftsmen, operatives, laborers and service workers; and the remainder are technical, office and professional workers.

Wage levels are generally very high, the second highest, in fact, of all manufacturing industries. In August, 1969, all transportation equipment workers, including aerospace, were making a gross average of $3.88 an hour (including overtime and shift premiums) compared to $3.17 an hour for all manufacturing.

Average overtime hours consistently run ahead of other manufacturing industries and account to some extent for the higher wage levels. Overtime is a major ingredient in autoworker parlance and is frequently utilized, sometimes for prolonged periods, by management when adjusting to high market demand. In the boom year of 1965, autoworkers averaged 6.2 hours of overtime a week for the entire year.

Industry officials say the decision to put on another shift is one of the most difficult that production people face.

Bulges in automobile demand will invariably require overtime, but an additional shift means training almost an entire new work force, arranging for wholly new scheduling for incoming parts and components, and then not knowing exactly how long it will be needed. One way out of this problem is to build new facilities, which will tend to cream off the overtime of several older plants; but the expense of this must be balanced against likely demand years hence.

The industry has a relatively long history of employing and integrating large numbers of Negro workers, at least in the bulk of the production worker occupations. In 1966, the three major producers employed 130,000 (13.6%) Negroes out of 947,000 total employment (including non-automotive operations). The table below compares the occupation distribution of the total work force to that of the Negroes in the industry:*

	Total Work Force	Negroes
Craftsmen	15.9%	3.0%
Operatives	63.4%	81.3%
Laborers	2.9%	7.0%
Service Workers	3.3%	5.7%
Sales, Office & Clerical	11.5%	2.8%
Technicians	3.0%	.2%
	100.0%	100.0%

The three main operating components of automobile production are assembly plants, machining-forging-foundry operations (the so-called power train group making engines, transmissions, axles, and chassis), and stamping plants (fenders, trim, and miscellaneous parts). Other automotive-related operations which are sometimes performed by the major producers and sometimes contracted out -- such as steelmaking, glassmaking, assembly of radios, air conditioners, ignition systems, and other parts -- are not included in this study.

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* Herbert R. Northrup, The Negro in the Automobile Industry, (Philadelphia, Pennsylvania: University of Pennsylvania Press, 1968).

The approximate percentage of the autoworkers in each of the above three units are as follows:

Assembly	40%
Stamping & Small Parts	25%
Machining, Foundry, & Forging	35%

Within each of the major units there is a group of skilled workers whose progression is basically from apprenticeship through skilled craftsmen. The progression of this group is altogether separate and distinct from that of the approximately 85% of workers who fall within the unskilled and semi-skilled categories. Within these latter categories there are some differences among jobs in terms of salary, flexibility, complexity and responsibility. And there is some movement from the less skilled to the more skilled.

But this movement should not be overemphasized. Industry and union officials regard what little progression there is more in terms of a reward for longevity than a true upgrade. At most it is usually a two step process, for example from assembler to inspector or from grinder operator to relief man.

In assembly plants, 80% work on the line and are considered unskilled. Another 15%, thought of as semi-skilled, act as inspectors, repairmen (workers who float in given departments and remedy other workers' mistakes), and relief men (workers who can perform all the jobs in a given 20 or 30-man unit and provide relief to the regular assemblers). A mere 4 to 5% are craftsmen (such as millwrights, plumbers, machine repairmen). Within the 80% of the plant's assemblers are several very small incremental differences between jobs that reward certain workers a 5 or 10 cents an hour premium for slightly more skilled assembly tasks, but the spread between top and bottom jobs in this group is so small that it could not be considered upgrading in the normal sense.

Moving from assembler to inspector, repairman or relief man is usually accomplished by bidding. In addition to the higher pay, these jobs offer a variety of activities not accorded to the majority of workers. While such higher rated jobs are normally filled by workers in the unskilled assembler classifications, in practice this is not a continuous progression. The ratio of unskilled jobs to the semi-skilled is high in the first place -- about seven and a half to one -- and added to this is the fact that there is almost no internal movement out of the semi-skilled classifications. So openings are relatively rare.

For machining, forging and foundry operations, the entry level jobs are generally supportive (material handling, foundry laborers, machine cleaners, etc.) to the bulk of the work force: those in the semi-skilled occupations such as machine operators, cutter grinders, inspectors, metal pourers and others. The skilled trades, which comprise approximately 20% of the employees in this area are made up of such occupations as tool and die-maker, pattern-maker, coremaker and blacksmithing -- all of which are apprenticed occupations.

In the stamping plants, the majority (65%) of the work force is again at entry level, but this time the jobs are a cut above the assembly jobs and perhaps more marketable: jobs such as welder, material handler, and press operator. The semi-skilled narrows down to 10% of the plant's employment and includes repairmen and inspectors. Internal progression is similar to that in the assembly plants. In the stamping plants craftsmen make up 25% of the workers, including die makers, tool makers, model builders, pipe fitters, and most of the gamut of apprenticeable skills.

The Bureau of Labor Statistics, in a 1963 study of the auto industry, notes that motor vehicle workers had by far the lowest percentage of "relative dispersion" of wage rates of any industry it had studied. (Three-fifths of all workers earned between $2.70 and $2.90 an hour.) For all workers taken together, one-half earned wages within a mere 3% below the median of $2.80, and the other half ranged within just 3% above the median. Relative dispersion, therefore, is just 6%. The mean wage was $2.90 -- reflecting the sharp rise in wages paid to skilled craftsmen as opposed to the small drop to the $2.50 base wage on the lower end of the scale.

This wage analysis serves to illustrate the limited amount of progression available to autoworkers. The only meaningful upgrade is really out of progression and involves moving to the apprentice programs or to supervision. There appears to be some small aberrant movement out of the bargaining unit into white collar technical jobs but automobile officials indicated these were very exceptional cases.

Entry into the industry is now virtually without significant criteria -- physical ability and desire to work being the prime considerations, at least in labor markets like Detroit. In less tight areas, a certain amount of high school years passed (usually two) still holds; but in the assembly plants this kind of requirement is strictly a function of the labor market.

Once on the job, seniority is almost the sole criteria for moving incrementally within the unskilled ranks, but weighed somewhat less for the move from unskilled into semi-skilled (inspectors, repairmen, etc.). If the more senior man wants these jobs, it is generally assumed he can perform them, and he's given at least a trial. Companies attempt to measure ability in moves to semi-skilled jobs but freely admit it is not something to be clung to if disputed. Bids for such jobs are posted either by department or plantwide, depending on local agreement -- although one major producer has no bid posting procedure and relies on foremen's selection. All training for semi-skilled positions is on the job.

Projected ability, based on test scores, counts heavily in apprentice selection for movement into the skilled craft positions, and seniority given only minimal consideration. Apprentices are normally selected among applicants 18 to 2 years old (the age limit can be waived) who have completed at least two years of high school. Applications are evaluated on a rating system with a perfect score of 92. Of this number, 60 points are based on written examinations -- 30 points derive from scores on the Wonderlic or equivalent test and another 30 points would go to a perfect score on a Bennett or equivalent skill test. Nine to 14 points can be awarde for school record, zero to 8 for trade related work experience, zero to 6 for company experience (seniority), and zero to 4 points on the interviewer's assessment. Apprenticeships are for four years, usually, and involve about 2-3 hours of classroom instruction per week in skill related subjects.

Companies offer an impressive curricula of mathematical and technical subjects at this point. About 15% of the total work force are either journeymen or apprenticing in skilled crafts. The collective bargaining contract states that there shall be no more than one apprentice for every five journeymen. The Big Three draw a majority of their craftsmen from within and have maintained stiff standards when considering outsiders for craftsmen openings. An outsider needed 10 years' experience plus additional training to get a journeyman's card at one plant several years ago but this requirement has come down sharply.

A recent Bureau of Labor Statistics study noted that the "industry's producing facilities five years old or less increased from 29% in 1961 to 58% in 1966, the highest proportion of new equipment reported by any manufacturing industry in that year. Moreover, 25% of the industry's capital spending in 1965 was for automated machinery and equipment, well above the average for all manufacturing."* The study goes on to note that this kind of change certainly contributes positively to increases in productivity per worker, but that the biggest contributing factor to the autoworkers average annual increase in output per man-hour between 1957 and 1966 -- 4.8% compared to 3.7% in all manufacturing -- was the high level of automotive shipments in those years. Put simply, auto and truck production jumped 54% in that period, while production worker employment increased by only 9%. This is not to mention the greater variety of vehicles and accessories which have increased over the years.

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* Chester Myslicki, "Report on Productivity Increases in the Auto Industry," Monthly Labor Review, Vol. 92, No. 3 (March, 1969).

The industry, the paragon of optimism, is expecting this year's sales to match last year's near record levels, but production currently is off because inventories have been high at dealers, and there is some deferred buying as a result of anti-inflationary measures. In any event, the industry's intense sensitivity to consumer demand should bump and grind it into a fairly high fall production period and into the probable strikes of the 1970 negotiations, and then an all-time record production year in 1971.

In general the technological advances noted above, which include automatic parts transfer lines, numerically controlled (tape) machine tools, electrodischarge machining, automatic welders and grinders, and of course computers, will not really affect the bulk of the work force who will continue to perform largely manual operations. Its biggest impact will be on the skilled trades, wherein certain older crafts such as machinist and tool-and-die making will be radically changed.

Thus while automakers will have an ongoing need to train their skilled people as more sophisticated machines begin to be introduced at the upper levels of the skilled worker category, the companies' real problem is retaining their entry level unskilled employees, 60% of whom leave in the first year in the major northern production centers. This is less a matter of training job skills than in developing some sort of program that will encourage the worker to stay on the job.

One big producer echoed others when he noted that, "We're getting damn worried about what this turnover is doing not only to our costs, but also because of the implications it has for the quality of product we're turning out." The three biggest problems have been identified as absenteeism, quits, and undesirable behavior. These are in many ways symptoms of a certain amount of unhappiness with assembly line jobs; and while most thoughtful personnel, training, and labor relations people realize this, at the moment no one has come up with any practical solutions on what to do about it.

There are a few experimental efforts underway. Lengthening of the orientation period has been found to have some small advantage; but one official indicated the cost to the company to give a new man one hour more of nonproductive company time -- not to mention a full day or a week -- would be astronomical and practically prohibitive to such a cost-conscious industry. Nevertheless, those locations with government training contracts are showing that this can have a certain amount of effect in stabilizing the employee and relieving some of the problems of the "first month syndrome." In addition to spotty efforts to lengthen the orientation, one automaker is developing an experimental program of supervisor training, having those foremen with a proven ability to hold workers longer share his experiences with other foremen. While nobody really believes that the assembly line tasks can be significantly restructured, nor that the spread between unskilled and semi-skilled can be narrowed (a "suspicious" contributor to the high turnover, says one top training official), there are certain experimental efforts at job enrichment. For example, one concept alternates two or three workers' jobs so that they would perform the same task only on every second or third unit.

This kind of variation stems from one automaker's belief in the truth about the boredom of the repetitive assembly job. This producer cites figures showing that certain semi-skilled and most skilled worker stability is great because of the mobility and variety of jobs, and even shows that workers in truck assembly operations have higher stability because trucks are practically custom built and require a greater degree of thought to the assembly process. So, reasons this producer, if you can vary the job enough within the strict confines of the assembly line going by at say 50 units an hour, you can begin to inject more "thinking" into the work and have a more satisfied employee.

Not so, says another producer's training director. It is precisely because of the great variety of models that pass a given work station, and the constant shuffle of different workers to fill in for absent employees, that the confusion and hence the frustration comes to new employees. According to him, it is not the repetition but the chaos of the assembly process that is most discouraging, and he would endeavor to maximize the sameness of the workers' tasks to increase job stability. This view got very little support from other industry officials.

One other concept currently under study is automating out those jobs which are considered most critical. Surveys have been taken of foremen's opinions as to which job in their areas they considered most critical and most difficult to fill when plant absenteeism runs 20% or so (as it sometimes does on Mondays) in a given day. The plan aims to eliminate critical assembly jobs through automation so that most workers can readily perform every task when absenteeism or worker shortages run high.

In general, however, no one really believes that much can be done to make the assembly jobs more attractive or that there will be any less demand for workers to fill the many openings. The union's basic input to this problem is to ask for more relief time, a solution that would seem to have only the smallest kind of impact, and certain to be vigorously fought by the companies. The union (as labor relations staffers quickly note with alarm) can also be expected to demand that the notion of job enrichment should require more pay on the basis that the man is doing more complicated work.

The union can also be counted upon to be particularly vigilant in the matter of protecting skilled trades against the inroads of technology, usually computer-related. At this point, it appears that the UAW's effort to whip up aggression for greater skills among journeymen, who comprise the elite in money and prestige among the membership, is meeting with little response. Nevertheless, it has been noted that the target of the next bargaining round may well be the computer.

The most ambitious programs to grapple with high turnover among entry level employees come through the MA series of Labor Department contracts, again an indication of the industry's inability, or presumed inability, to spend money on nonproductive training.

The one automaker who expressed a special interest in the upgrading component of the MA-5 training series said that he would like to use the money to give assemblers more remedial skills in order to make them promotable to, say, inspector or repairman, or into white collar jobs that might take them out of the bargaining unit. While inspector and repairman go to the most senior employee if all else is equal, this company foresaw "all else" being substantially unequal as time passed and hard core types definitely requiring more training. But to give the less qualified man training in order to enable him to take a job over a less senior man who requires no training raises difficult bargaining questions with the union; this company felt its effort in this direction would have to be very delicate, and indeed no application for the upgrading option in MA-5 was envisioned until early next year. Another automaker official simply didn't see how the special upgrading training could be conducted. He said the company hadn't thought of using it to train production people for white collar jobs such as detailers and designers because there was no real need for workers in that area. When there was, the positions were usually filled by skilled craftsmen.

A significant and exceptional program has been launched by one automaker faced with increased need for craftsmen. It has studied the results of tests failed by applicants for apprentice programs and, by identifying certain weaknesses which can be remediated in a short period, the company has begun special pre-apprentice training for candidates with only those deficiencies. The program has just started, but its degree of success may offer valuable lessons for further innovations within the structure.

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BASIC STEEL

The steel industry comprises establishments which make iron from iron ore and scrap, convert the iron into steel, and roll the steel into basic shapes such as plates, sheets, strips, rods, bars and tubing. Production workers are almost all members of the United Steelworkers Union.

Several factors provide the framework for understanding training and upgrading practices in the steel industry. First, productivity and steel output have gone up considerably in the past ten years as the industry succeeded in modernizing its plant to meet the pressures of foreign competition. Thus, absolute numbers of production workers have increased very slightly since 1958, allowing for the averaging out of peak years in steel consumption. Ten years ago, the industry employed an average of 432,000 workers a month, and in early 1968 (when a threatened steel strike was revving up production), it was 451,000. Ratio of production people to total employees has held steady throughout the ten years at approximately 80%.

Second, wage levels in the industry are high. In 1967, steelworker average weekly earnings were $145.16, while all manufacturing industries paid an average of $114.90. In early 1968, steelworkers were making an average of $154 a week, at averages of $3.74 an hour times a 41.4 hour week.* The average hourly rate is boosted substantially over the labor contract base levels because about two-thirds of the workers are on incentive pay which rewards production increases over established standards. Straight hourly wages in the current contract run from $2.77 an hour for job classes 1 and 2 (rarely used) through $5.34 an hour for the top job class -- 33. The median salary for straight-time workers is approximately $3.20 per hour, while the median for those on incentive is approximately $4.00.

But, by far, the most significant factor in a review of upgrading opportunities is the structure of jobs within the industry. For it ranks with the petroleum industry in having the closest thing to career ladders for all of the production work force of any industry in the country. There are 33 different rates of pay, each about 8 cents an hour apart, and each of these job classifications -- 1 through 33 -- are determined through an elaborate weighing of task requirements in physical exertion, working conditions, skill and experience needed, and other factors.

These factors, no doubt, are crucial inputs into the relatively greater stability of the work force in the current tight labor situation. U.S. Bureau of Labor statistics show steel separation rates for 1967 running at a monthly average of 2.7 employees per 100 compared to 4.6 separations for all manufacturing. The quit rate is 0.9 per 100 employees per month, compared to 2.3 in all manufacturing. These figures, for what they're worth, do point out that steel tends to retain people better than most production industries and certainly, in areas like Pittsburgh, the work force is considered very stable. The Chicago district is the volatile one, with many high paying industries vying for the limited worker supply. One mill visited in that area, however, indicates that it retained 65-70% of all first year hires, which must be considered a satisfactory rate for such a market.

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* Production workers' average weekly hours since 1960 have tended to be slightly below the average for all manufacturing and to hover consistently around the 40-hour week mark. The opportunities for overtime are limited by the continuous nature of steelmaking which requires that many departments be fully manned 24 hours a day, 7 days a week. (There are in effect 4 shifts per week and workers are programmed to rotate onto differing 5-day workweeks, and different work turns.

In 1963, there were 288 separate plants employing a total of more than 500,000 people. Approximately three-fifths of these people worked in 33 fully integrated mills,* each of which employs more than 2,500. Another fifth worked in steel works without blast furnaces, and the balance in partially or non-integrated works. But even the latter two-fifths worked mostly in larger plants, and for the industry as a whole, 4 out of 5 people worked in facilities employing more than 2,500 persons.

Steel is made through a series of processes which differ considerably in the skills required, hence the occupational structures develop along somewhat narrow departmental lines. Although each mill would have differing departmental breakdowns, the basic units normally are:

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* Plants having coke ovens, blast furnaces, steelmaking furnaces, and rolling and finishing mills.

- .Coke ovens
- .Blast furnace
- .Open hearth/electric furnace/basic oxygen furnace
- .Bloom, slab and billet mill
- .Differing departments for the type of steel being finished (i.e., plate, wire, sheet, strip, etc.)

Behind these would be the various support activities, also considered departments, such as:

- .Maintenance (craftsmen)
- .Yard and transportation
- .Metallurgical

A typical promotion sequence for two different units within one department might run as follows within the basic oxygen furnace (BOF) department:

From the labor pool to:
job class #4 - crane learner
mold yard craneman
scrap craneman
stripper craneman
hot metal craneman
job class #16 - ladle craneman

Or the man could go into a floor crew progression within the BOF department, from the labor pool to:

- mold yard hooker
- hot top preparer
- pitman
- ladleman helper
- steel pourer
- ladleman

Historically, workers in promotion units such as those above would have little access to jobs in other units, even within the same department, but federal equal opportunity pressures have prompted the major steel companies and the union to write into the recent contract a provision that seniority will be applicable to as broad an area as possible, and specifying the departments mentioned above as the minimum number of seniority pools.

Although mostly directed at the past practice of placing minority group people in dead-end, low-paying sequences within departments, the provision will likely boost the mobility of everyone caught in units where top jobs are filled by workers with many productive years left.*

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* Herbert Northrup's monograph, The Negro in the Steel Industry, indicates that Negroes make up about 12% of the work force. But of this percentage, blacks have only about 1% of the white collar office jobs and 6% of the skilled craftsman jobs. Negroes account for 17% of the blue collar operatives (the bulk of steel industry jobs) and 25% of the laborers. These figures are confirmed by Equal Employment Opportunity Commission statistics.

The steel mill is broken into numerous operating departments, each of which has a promotion sequence whereby employees work closely with others who are at least one job classification ahead. When vacancies occur, generally speaking, everyone below that opening moves up a notch -- is upgraded. Each man is theoretically capable of performing the higher job because of preparation from other positions he has held in the department, by his observation of the higher job, and by occasionally filling in or spelling the man ahead. Each department has different job classifications involved in the promotion sequence. Some have relatively low classifications as the highest position to which one can look forward, but most have top jobs in the range of job class 17 through the mid-20's. (There are only a handful of people in the entire industry who hold down job class 33.)

In theory, the typical new employee is hired at job class #2 or #3 and put into a labor pool, either a plantwide pool or a departmental pool. At that moment he begins accumulating plantwide seniority, or if in a departmental pool, seniority for that department also. The pool workers, collectively regarded as laborers, historically make up around 20% of the work force. They are assigned a variety of low skill tasks and are not actually considered integral to the department's promotion sequence until openings occur at the bottom of the department's sequence, usually job class #5 or #6.

Traditional progression sequences are only partially operative in today's labor market. Steel is currently plowing through what is expected to be a record shipment year, and this rate of production, in combination with a generally tight labor situation and with modernizations now taking place, is cutting drastically the number of so-called laboring jobs in classes 1-4. (Actually jobs 1-2 have almost ceased to exist.) New workers are now frequently going right into the promotion sequence in classifications #5 and #6 and at a rate, according to a union source, where only some 5% or 6% of the whole production and maintenance work force is in the laborer class. This leaves 65% in the operative or semi-skilled classes, and another 30% in trades and crafts (of which there are now 25 different occupational classifications).

At classification #5 or #6, or after moving through a few higher job classifications, the worker usually goes into a unit within the department. The worker has by this time accumulated at least three kinds of seniority: plant, department, and unit. (He may also be getting companywide seniority.) Each of these seniorities is designed to protect the worker from the more senior men in other plants, other departments, and other units in the event of layoff -- a major consideration in the cyclic steelmaking year. It also protects the worker from the simple bumping or transfer of older workers in other areas who see better promotional opportunities in another department.

Adding to this mobility is the rampant introduction of new steelmaking technologies and correspondingly, new departments. Twelve years could be considered a typical length of time needed to climb to the top of the unit sequences outlined above, and this duration has been considered a basic reason for dissatisfaction and high turnover among younger workers. But now, if more senior workers elect to move into the new departments, younger workers can move faster in the old ones. Or the technical requirements of new departments may require testing that relatively younger workers may pass more handily than the older ones. Or the old ones simply don't want to move into a new operation -- a tricky point with the union (which maintains that in manning new facilities the company sometimes will misrepresent the challenge of modernization to older workers in order to lure the best, rather than the most senior).

The steel industry has traditionally operated in the archetypal industrial environment: hot materials pouring into and out of hot ovens, furnaces, and rolling mills; a generally grimy and polluted atmosphere; a definite masculine flavor; a continual process which never shuts down; a certain amount of physical danger; a tough foreman-worker relationship.

Modernizations underway for the past ten years, and those planned for the coming decade, will bring a certain amount of change to this scene, however. All new equipment is being designed with the workers' comfort in mind (such as air conditioning of pulpits and other enclosed working areas for the first time) and much attention is being paid to minimizing air and water pollution, to providing clean working spaces, and to creating the safest equipment possible. Nevertheless, steelmaking will always have a certain amount of inherent danger, and mills will never offer the conditions attractive to those wishing to work in controlled environments. Generally speaking, mill conditions improve as the steel becomes more finished -- coke ovens and blast furnaces, where steelmaking begins, have usually been the least wanted areas, while rolling processes and shipping departments (provided they have sufficient job mobility) are the more desired.

In 1963, nearly 30% of the industry's workers were employed in Pennsylvania, while 42% worked in the North Central states of Ohio (which took a third of the group), Indiana, Illinois, and Michigan. Since then, however, the focus of the steel industry has shifted strongly into the Chicago lakefront area (including northwest Indiana), and the newer mills in that vicinity and others being built or planned should make it easily the largest single employing district in the industry.

Selection for entry level jobs depends on the labor market. In the Pittsburgh and western Pennsylvania areas, the manpower supply is adequate and a high school diploma is still required along with a clean record, etc. In the burgeoning Chicago district, however, almost all hiring requirements except physical capability have been dropped. This is causing concern among industrial relations officials who foresee less capable workers blocking promotional sequences in the next decade, as production techniques require more mental ability. This attitude may be tainted by racism, but it is one nevertheless that has prompted each steel executive interviewed to declare that the industry will need to become not only a vast training organization but an educational establishment as well.

As previously indicated, seniority is the primary factor for upgrading. Ability is assumed for normal advancement in operating progressions, it being presumed that enough is learned at the subordinate level to allow a person to perform the next higher job. In the higher levels however, the few upper 20's and lower 30's job classes, there is some deliberation on the man's ability, and even testing in a few instances. Even so, this is often just to determine literacy (there are many older semi-illiterate workers), and usually the most senior worker will be given the opportunity for trial in the open higher position if he requests it.

When openings occur in a department, notice is posted and employees are expected to apply for the job usually within four working days. Often there will be several people in the job class below the vacant one, and if all bid, the more senior will get it. Filling of temporary vacancies due to allowances have been given to credit the helpers on these jobs with apprentice time although they undergo no formal training. The companies chaff about the length of apprentice programs, and are trying to cut back on certain crafts, but the union's skilled trades groups (as in most other industries) are strongly opposed to any changes. One union official agrees with his membership but for different reasons. He says that to arbitrarily "gut" the apprentice programs for whatever good reason (getting in more blacks) will work to great eventual disadvantage of workers whose skill requirements will be increasingly challenged by new equipment.

Apprentice openings are normally made known in the departments in which they occur, often there is an age limitation on who can apply (but with the need for journeymen, this is being largely ignored), and the candidate takes a battery of tests for general aptitude and compatibility with the specific skill. If he passes, he is almost always accepted although he must also be interviewed by the plant's craft committee.

Aside from apprentice programs, most companies have found a critical need to update journeymen's skills so that this group can handle the increased electrical, electronic and mechanical challenges of the new steelmaking equipment now being installed. This kind of instruction is usually offered free and after working hours.

absenteeism or sickness can go to anyone in the lower job class without prejudice to the eventual permanent assignments. In regard to the ability factor in the preceding paragraph, it should be noted that most mills appear to consult the personnel records of those in line for a promotion and will on occasion rule out more senior employees if their absenteeism, or poor workmanship, or poor disciplinary record warrants such action. That is to say that negatives count "against" while positives appear to have much less weight "for."

Apprentice openings are also posted; and if the craft is for one department only, that's the department which will hear about it. Plantwide crafts get plantwide posting.

Training is almost strictly on the job except where new facilities are involved. In such cases there will be formal instruction either by supervisors and plant training staff, or by the vendors, and usually a combination of both. There are also in many locations courses in general operating practices for the regular production people whose successful completion of the instruction will be noted in personnel records and may have some bearing in a minor number of promotions.

There are now 25 craft positions, most of which call for four years of combined classroom and OJT instruction. Some jobs in the maintenance area, not formerly considered crafts, have been upgraded to such a classification and certain

Training is generally considered inadequate for future needs. The steel industry is undergoing a case of increased skills demands combined with a less stable labor force. As noted, most employers feel that an increasing bulk of their newer workers are not going to be acclimated easily to the demands put on them in several years, and the companies tend to think of the "one hell of a training and educational program" they will need to go through. Aside from a basic education program being conducted at several mills by the Board for Fundamental Education -- the results of which have been unmeasured objectively at the moment (though most mills have begun their own evaluation) -- there is no specific concept about how this will be done.

One thing that does get a certain amount of increased attention is the simple matter of prolonging the original orientation period. A lengthy orientation used to be a fixture in the industry but was dropped years ago. Now, a major steelmaker believes, it should be reinstituted as a first step to stem the high turnover of newer employees.

Just how much the employers' fear about the future is realistic in terms of the employees' incapability and how much is based on the simple matter of providing a more stable work force is moot. It seems likely that the newer employees are going to be just as "qualified" as the older workers were, many of whom were illiterate at a percentage rate most likely higher than now.

The industry itself is unsure of the long range effects of technological changes on its future labor needs. One firm has currently put two men on a manpower projection project, but from the tenor of their remarks, it appears that findings at the moment are fuzzy. The USW thinks the current rate of job elimination is 1:13, and that this will steadily increase to a rate of one out of every four existing jobs being eliminated. This kind of erosion will be mitigated, in the union's view, by a faster rate of attrition in the future (U.S. Steel says 44% of its workers are 50 years or older) and a slower rate of new employees hired. Such displacement will largely come in the unskilled and semi-skilled departments. More skilled occupations will rise to as high as 50% of production employment. Whether this change will result in increasing the number of craft jobs or merely boost the skill levels of currently semi-skilled operatives is not clear. It will probably be a combination of both but the end result will be the same.

Steel, of course, is tightly connected with the general economic health, and any predictions about its future must take long economic views about consumer and industrial consumption. U.S. Steel officials believe consumption will increase about 2½% annually over the next several years -- a fairly paltry growth rate -- and one, given the averaging of boom and slack years, not calculated to bring great infusions of new workers, especially in light of the job elimination envisioned.

In regard to upgrading, there appears to be a considerable amount of disagreement underway regarding how the manning of new facilities will be handled. The employers essentially want to put the more qualified men in jobs (as determined by tests and evaluations), while the union is pushing for the more senior. The union notes that the company has at times misrepresented job opportunities to older workers, seen them refuse the transfer, and thereby has been able to select supposedly more capable workers.

Incentive work is a major factor here. Two-thirds of all basic steel employees work under a system of departmental unit incentives that rewards output above an established norm. It is one of the thorniest issues at the bargaining table, because the company maintains that old incentives are becoming less valid as newer equipment speeds automatically the output, with employee contribution continually diminishing. Thus the company attempts to set much lower incentives on new equipment. But the concept is so ingrained in the operations that there will be all manner of slowing down in non-incentive or low incentive departments, until the company reinstitutes a system comparable to other operating departments. A recent arbitration award appears to have settled this issue largely in favor of the union and will likely lead to substantially higher wages for many classifications over the next few years.

Another problem relates to the skilled trades. The question of the validity of current apprentice programs and the transfer and credit rights of employees working in jobs which would give them sufficient OJT to qualify without elaborate screening, are currently under review. The companies are striving toward the combination of certain crafts, especially in the electronic field. For instance, there are now separate crafts called electrician (four subdivisions), electronic repairman and instrument repairman. The company is using equipment which now requires the skill of all three men, jurisdictionally, and wants to have one man who is skilled in all three. The union sees this as having a long range attritional effect on the number of employees in those categories, while the worker is not getting an adequate money reward for combined craft.

Finally the question of testing is one that the union regards as very troublesome, maintaining that all too often the company gives tests that are not job related. A special appendix to the recent collective bargaining agreement specifies that job relativity is essential in testing, but does allow the company to get indications for determining the employee's ability to advance in the promotional sequence beyond the position immediately open. This often occurs when new facilities are being staffed up. Supposedly the employee who is unsuccessful on the tests gets counseling on how he can pass them in the future.

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RUBBER TIRES

-- An industry whose wage structure has few equals among production workers in manufacturing;

-- An industry which can, as a consequence, take its pick -- if it so chooses -- from among factory-oriented high school graduates -- for jobs whose entrance qualifications are substantially below that standard;

-- An industry highly organized by a union ready to maximize its bargaining position;

-- An industry characterized by many of the indices of growth, save that of a rapidly expanding work force (the major producer doubled its sales between 1961 and 1968, while employment, including both tire and non-tire, increased by one-fourth).

These are the factors which shape the outlook for training -- and opportunities for upgrading -- in the rubber tire industry. Technology has kept pace with rising demand thus far -- and the major companies give every evidence of commitment to a heavy program of continued capital investment.

The classification of this industry covers those establishments primarily engaged in manufacturing, from natural, synthetic or reclaimed rubber, pneumatic casings (and a small amount of inner tubes) and solid or cushion tires for all types of vehicles, airplanes, farm and off-the-road equipment, and children's vehicles. These establishments also market camelback (tread rubber) and tire repair and retreading materials, as related by-products of the tire production process.

The rubber tire Industry is dominated by four large firms -- three of which are headquartered in Akron, Ohio -- accounting for 75.0% of the tire production capacity in the United States. A total of fourteen corporations are currently engaged wholly or primarily in the manufacture of tires. The two largest firms alone control 50.9% of tire production capacity (including both proprietary plants and wholly-owned subsidiaries).

In spite of the decentralization program which has characterized the industry since World War II, Akron still produces one-third of the nation's tires. The state of Ohio accounts for one-third (33.7%) of production worker employment in the rubber tire Industry; the midwestern region (excluding Ohio) provides 25.7% of production worker jobs in rubber tires; the eastern states account for 15.5% of such jobs, California 7.1%, and the South 18.0%. As is the case with other capital-intensive industries, regional dispersion of jobs tends to move slowly over time; there is a clear-cut trend toward increasing capacity (and production worker employment) in the South, however, at the expense of jobs in Ohio (particularly in Akron) and in the East.

The interaction of (a) substantial capital investment per production worker, (b) a high wage structure, (c) a high level of technological innovation in production processes, and (d) a high rate of increase in productivity has resulted in a decline in the proportion of production workers to total employment in the rubber tire industry. From a ratio of 79.0% in 1948, production workers have fallen to 69.7% of total employment in the industry in 1968. In absolute numbers, production worker employment has diminished from 97,600 in 1948 to 78,400 in 1968. The trend in production worker jobs since 1960 would appear to have "tailed off" in 1963 (when it reached a low of 69,900), and to be moving gradually upward again -- as tire production increases and as new plants are opened up in the South and Southwest.

The rubber tire industry will not, however, be a "growth" industry in terms of large-scale opportunities for expanded employment in the decade ahead; the industry will provide a job "windfall" to those communities in which new plants are located, however, because of the high-wage structure of the industry. The United Rubber Workers have maintained aggressive jurisdiction over the industry from the earliest days of its organization. The industry is all but completely organized by the URW which has taken advantage of its dominant bargaining position and of the historic high-wage character of the industry (dating back to the years prior to World War I) to push for continued wage and fringe benefit gains for production workers. Since the rubber tire industry is quite obviously in a "tandem" relationship with the automobile industry, the URW has taken advantage, as well, of the bargaining process of the United Auto Workers in establishing its demands.

The industry has been characterized by steady but evolutionary changes in the technology of tire production. There have been occasional major breakthroughs in production techniques (the Bag-o-matic, for example, which eliminated many of the hand operations in the curing of a tire), but innovation has tended to come in the form of mechanized handling of materials, the introduction of automatic controls in some processes, and the addition of mechanical devices to replace hand operations (in the building of tires and the preparation of ply stock, for example). Aside from the technological "lag" between design of new equipment and its availability in marketable form, the very substantial capital investment required for new production machinery has combined with the problems of integration of old and new equipment, in the already-existing plants, to produce steady -- rather than spectacular -- technological change in older plants. The newer plants built since World War II, and particularly those built in the 60's, have taken full advantage of the latest in production rationalization and have had a "compounding" effect on the rate at which output per man-hour has been increasing in the tire industry.

Output per production worker has risen on an index basis (1957-59=100) from 112.1 in 1960 to 170.5 in 1966 --

the most recent year for which figures are available from the Bureau of Labor Statistics. Productivity per production worker man-hour is very nearly as impressive -- from 111.5 in 1960 to 158.3 in 1966. BLS calculates the average annual rate of change in output per man-hour (production worker) at 6.4% for the period 1957-66. To put this figure in perspective, the Basic Steel Industry showed a 2.7% annual rate of increase over the same period and petroleum refining (among the most sophisticated industries in terms of technology and "no hands" operation) posted a 7.7% annual rate of change in production worker output.

Up until 1968, the industry was (and could afford to be) rather selective in its hiring practices. The industry's wage structure permitted it to require of all applicants, a high school diploma and a satisfactory score on a general aptitude test. Hence the industry tended to skim the "cream" from the local labor market -- even for the most routine production jobs. The ethnic make-up of the industry tended to reflect white middle-class America; Negroes entered the industry only in the least desirable (and dirtiest) production jobs, and in the clean-up and sweep-up service classifications.

The establishment of plantwide seniority in the Big Four in 1952-53 broke down some racial barriers -- but turnover in the industry is sluggish enough that movement of Negroes into higher-skilled and better-paying classifications (provided they get past the employment gate) has come very slowly.

Because of the tight labor market the high school diploma requirement has been generally abandoned for the last year or so, and the companies are more consciously recruiting Negroes -- both because of governmental pressures, and to lend some "color" to their community image. The new plants opening in the South are, by and large, recruiting on a non-discriminatory basis.

The production worker "mix," however, is still weighted by previous employment practices. Herbert Northrup found, in his study on "The Negro in the Rubber Tire Industry," that Negroes constituted only 11.7% of blue collar (production worker) employment, as of 1968 -- with the highest percentages in the laborer and service worker categories. Negroes constitute only 1.6% of white collar employment, including office and clerical employees.

The ratio between male and female among all rubber tire employees has held fairly constant since 1960, at about 12% female. Roughly half of these employees are in the office and clerical category, however, so that bargaining unit or production worker females number no more than 6% of that group.

Among all non-supervisory workers in the rubber tire industry, including office and clerical, sales workers, and technicians, as well as production workers, the make-up between blue collar and white collar would run 84% blue collar and 16% white collar, as of 1968.

As noted earlier, the rubber tire industry has historically been a high wage industry; the union has exerted maximum pressure to maintain this favored position, even to the extent of accepting, on a few occasions, a wage increase differentiated as between tire and non-tire plants within the same rubber company. As of 1968, the average hourly earnings figure for production workers in rubber tires stood at $4.02 -- as against $2.74 for production workers in all non-durable manufacturing, and $2.85 for all non-supervisory employees in the private sector of the U. S. economy.

Like many other capital-intensive industries, rubber tire companies have tended in recent years to work their present production work force on an overtime basis, rather than expand substantially via additional hiring. The result has been a relatively low rate of turnover among production workers, and an unusually high level of overtime work. Overtime hours in rubber tires averaged 6.7 hours per week in 1968; overtime hours in all non-durable manufacturing were only 3.3 per week, by comparison.

Thus the industry remains, from the paycheck point of view, an "elite" industry for the average rubber tire production worker. He holds an enviable position among his industrial colleagues -- but the likelihood that large numbers of new entrants to the labor force will join him would appear to be rather slim during the next decade.

The basic materials from which a tire is "built" are essentially three: rubber (for the tread stock), rubber-coated fabric (cut into "plies" to form the carcass), and the beads (rubber-coated wire for reinforcement in holding the tire to the wheel rim). Once the tire is built, the "green" tire has to move directly to a curing press, where it receives its final shape while being "cured" or vulcanized, under intense heat and pressure.

Rubber is a perishable commodity, in the sense that, once the processing of the raw rubber has begun, the rubber must be kept moving from one step to the next -- lest the chemicals which have been mixed in begin to "self-cure" the rubber, rendering the batch unusable. Thus the tire production process is highly integrated, with a premium on expeditious movement of material and on the maintenance of all equipment in working order.

The raw rubber, whether natural or synthetic, is broken down from the bales in which it has been shipped in the mill room. Initially the rubber is worked (synthetic and natural are blended in most tire rubbers, in a ratio of roughly 3 to 1) with carbon black, accelerators to speed the curing process, anti-oxidants, and other specialized chemicals, in a massive mixing machine called a Banbury. Much of the art of rubber mixing in the Banbury is computer-controlled today, and the heavy lifting which accompanies the preparation of a "batch" is largely conveyorized. Nonetheless the Banbury crew carries

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substantial responsibility as well as pride of craftsmanship in their operations, and the jobs are among the better paid in the plant.

Rubber from the Banbury goes to a "tuber" if it is to be formed into tread stock. Here it is warmed in a mill, forced through a die (which gives the tread stock its characteristic "camelback" shape), cut into tread lengths and laid in "books" or racks for delivery to the tire builders. Tuber operators are paid about as well as Banbury operators.

Fabric for the plies or carcass is processed in calenders, which are, today, electronically controlled for heat, gauge and speed -- but the operation is still highly complex, requiring long months of training -- and the calender operator is normally the highest paid production worker in the shop. His rate is exceeded only by the most highly skilled of the maintenance trades (electrician, pipefitter, and sometimes mold maker or mold repairman).

Plies, or lengths of rubberized fabric, are cut to the size of the tire to be built, using the rolls of processed material delivered from the calender. The operator, called a bias cutter because the fabric is cut on an angle or bias, is also one of the better paid of the production workers.

Beads are formed from reels of steel wire, and are coated by automatic machinery, with rubber which has been warmed in a mill -- or are sometimes "flipped," that is, wrapped by hand with rubberized fabric.

All of these materials are delivered (now usually by conveyor) to the tire builder, who works on a revolving horizontal drum standing chest high in front of him. He lays on the plies and the tread stock, while controlling the insertion of a bead on each side by tripping a foot switch. Most of the rolling and cementing, while formerly was done by hand as each ply was laid on and the beads were fitted, is now performed semi-automatically by the tire-building machine. The tire builder's expected output has thus been increased substantially -- but the job still requires skill and agility, and is one of the prestige occupations in the plant, both in pay and status. Truck tire and off-the-road tire builders command even higher wages -- both because their jobs are more rugged and because more of the operation must be done by hand.

The completed tire looks like a loose cylinder several feet wide and open at both ends. The green tire goes to a curing press, which inserts an airbag inside the tire, closes a mold around the tire, and cures the tire by a combination of heat and pressure, while the airbag forces the soft rubber to take the tread imprint which is cut into the inner surface of the mold. The cured or vulcanized tire is then ready for inspection, buffing and wrapping.

By describing in some detail the building of a tire, we bring into sharper focus both the evolutionary process by which the technology of the industry has progressed, and the changing nature of the major occupations in the industry. The effect of technological "upgrade" has been to eliminate a substantial part of the physical burden from many jobs, as well as to "clean up" a number of the dirtiest and most objectionable occupations.

In terms of job mix, there are fewer material handling jobs today -- and substantially fewer in the laborer category -- but more occupations in the operative group, and probably more specialization of jobs within this broad category. It is still a fair estimate, however, that at least one-third of all production jobs require less than a high school education, and can be learned with a one to five day break-in period.

Thus the relaxation of entry level selection techniques, noted previously, would appear to have been long overdue. The job structure of the industry permits the utilization of substantial numbers of applicants with little or no experience and a minimum of education. Disregarding governmental and community pressures, however, the drawing power of the industry's wage levels will continue to permit the rubber companies to "select," for entry level jobs, those persons with the immediate qualifications to progress to the top of the job ladder. Only a conscious and specifically designed employment program can assure access to the industry for the less qualified and the disadvantaged.

As previously noted, about one-third of the available jobs require no skill. These jobs provide entry levels for movement into the operative or semi-skilled type jobs, which involve about 40% of the work force. In moving beyond the entry level job, the employee's opportunity for a higher paying classification is governed almost exclusively by seniority. Job openings are posted within a department, which normally includes a contiguous and related set of operations (the mill room is one department, in most instances; bias cutting and related operations is one department; passenger tire building would be one department -- but truck tires or off-the-road tires are treated as separate departments).

The senior employee who bids on an opening within the department has first call on the job, provided that there are no employees on layoff or transfer from the department in question, or who have preferred status under the contract, who elect to bid for the opening. Should no employee within the department bid for the job, then the senior employee on a plantwide basis who has filed a bid for the classification in question is awarded the job.

In the case of the major companies, an employee must normally have one year's service before he can exercise bidding rights on a plantwide basis -- and restrictions are imposed on the number of bids which he can exercise during a given period of time. In the case of smaller companies, normally all employees who have passed their probationary period (30 days) are eligible to bid -- but seniority within departments and then plantwide, still prevails.

Ability in the rubber tire industry is measured simply by whether the employee can learn the job. The phraseology in one contract "...provided he is able to do the work within a reasonable breaking-in period..." is representative of the broad context within which ability is evaluated.

The wage structure of the industry performs the function of measuring ability in the final analysis -- because 85% of the production worker jobs (excluding the skilled trades in the maintenance department) are paid on a piecework or incentive basis; the ultimate measure of ability (or of ability to learn), therefore, is whether the employee "makes out" on the job. If he produces up to the established piecework rate within a reasonable period of time, he is considered to have qualified.

Company and union officials agree that there are few problems in the bidding process as it currently operates. They add that the process tends to be self-regulating; an employee is not likely to bid on a job on which he cannot "make out," in terms of earnings. The industry accepts seniority as decisive and, in the light of the "quality" of employees which the industry has attracted, this is not a great gamble.

The route followed by the majority of employees, in moving up the occupational ladder, is normally within their home department. This is familiar ground, once learned, and the higher paying jobs can be spotted and prepared for by on-the-job observation. There are, of course, numerous exceptions -- employees who move to another department because of layoff or because of being bumped in the course of a layoff, employees who get "hungry" for a particular job, employees who have a friend (either in the bargaining unit or in supervision) in another department.

As the production worker gains seniority, he tends to "stay put" for additional reasons: he may use his seniority to choose a preferred shift (particularly in Akron, where the 6-hour day, 6-day week still prevails) rather than move to another department; and he is aware of the resistance he may meet in a new department, if he moves in with substantial service. The latter factor -- manifested as the desire to protect one's "turf" -- is common to the human situation; and the seniority issue simply makes the residents that much more protective.

Breaking-in on a new job is accomplished by a combination of observation and informal on-the-job learning, in most instances. The foreman or first-line supervisor may provide rudimentary orientation at the job site, but the instruction (including, on occasion, "trade secrets") comes primarily from fellow employees. The foreman is always available, however, as a troubleshooter.

There are exceptions, of course, as in the case of a more complex and individualized job such as tire building. Here an experienced tire builder may be formally assigned as an instructor and demonstrator for a reasonable training period; the instructor receives no premium for his tutelage, but is guaranteed his average hourly earnings -- and probably enjoys the respite from production pressure.

Training of apprentices for the skilled trades classifications in the maintenance department of a company is conducted completely apart from the production job bidding procedure described above. Elaborate provisions are spelled out in the contracts to protect the skilled trades group from incursion from "outside" departments, and to insure strict adherence to craft ties in the performance of skilled trades work. Nonetheless the administration of the apprenticeship program is in the hands of the company, including the selection of apprentices -- although the existence of the program is acknowledged in the labor agreement, and certain conditions are stipulated, including the protection afforded to apprentices in the event of layoff. One contract does provide for a ratio of one apprentice to ten journeymen, and sets up an apprenticeship committee to monitor apprentice training -- but it is not a jointly-administered program, in the usual sense of that concept.

The apprenticeship program is under the jurisdiction of the Engineering Department in the rubber companies, and is conducted in accordance with Bureau of Apprenticeship Training standards with respect to hours of schooling, on-the-job instruction and the like. Applicants are far more numerous than openings, and a friend in supervision can be of great help to the qualified candidate. One company set up a special pre-apprenticeship class for disadvantaged youth, and ran into strenuous objection from the local union, which claimed that the program should have been open to all (including sons and daughters of present members); the grievance is still pending.

The companies generally report that retention of company-trained apprentices as journeymen is remarkably high; there is relatively little in the way of pirating.

Long term employment, training and upgrading seems likely to be significantly affected by two recent technological developments:

1. The apparently successful launching of the belted-bias tire in 1969. This type of tire represents a significant departure from the conventional bias-ply tire although it can be built with only slight modifications to present equipment. It appears that the auto industry is buying the concept; Chevrolet, in announcing its 1970 models, indicated that the belted-bias tire will be standard equipment for its entire line. This has already been interpreted as the "signal" for

all of General Motors -- and Ford and Chrysler will not lag behind.

The potential impact on production worker employment? Belted-bias tires require roughly one-third more time to build than a conventional two-ply tire. On a six-hour shift at the Goodyear plant in Akron, a passenger tire builder puts out 108 Polyglas tires for his "ticket" -- while the same builder would be expected to put out 150 to 170 conventional two-ply tires per shift, depending on size.

It has been estimated that belted-bias output will reach 40 million units in 1969, as compared to 15 million units produced in 1968; if Detroit commits itself fully for belted-bias as original equipment, the 1970 figure will be substantially above 40 million. In any event, this technological development could well produce an upward swing in tire-builder employment, at least for the short term --with clear-cut effects on upgrading and on training needs.

2. The second technological development, a new process for assembling bead and ply, came in conjunction with the opening of a new tire plant in Georgia. The process was publicly described by a company spokesman as the "biggest advancement in tire manufacturing in 50 years." Coupled with this kudos came a description of another new process for laying on tread stock; instead of a single slab of the familiar camelback, a thin hot sheet of rubber is

rolled continuously onto the tire body, until it is built up to tread thickness.

Allowing for publicity department hyperbole, the combined system comes remarkably close to the long-expected automatic tire-building machine toward which the industry has been striving. Bearing in mind the pay-out which the rubber tire industry exacts from its capital equipment, wide-scale utilization of the process is likely to be ten to fifteen years away -- but there is no mistaking the system for other than a major breakthrough in technology. While this new development could potentially eliminate one-third of the present job structure, it is also likely to introduce entirely new functions and so, for the time being, its overall effect on employment cannot be measured.

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APPAREL

The three basic components of the production process in the apparel industry are cutting, sewing and finishing (trimming and pressing). Most of the jobs in the industry correspond to these components and they are largely dead-end, relatively low paying and filled by women. Bundled according to size and style, garment pieces move from one operator to the next, each worker performing prescribed tasks on each piece. Inspectors spot-examine the garments for quality of workmanship. The simple sewing machine, the shears and the steam press or hand iron are the basic tools of the garment maker. Attachments that perform combination tasks augment the sewing machine's efficiency.

The factories and firms covered in this profile manufacture and job women's and children's outerwear and underwear and men's and boys' outerwear, furnishings and underwear.* Combined, they employ about 1,100,000 workers of whom 85% are blue collar operatives and 78% are women.

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* Apparel firms generally fall into three categories: (1) Manufacturers who maintain "regular" or "inside" factories, buy raw materials, design garments, prepare samples, make the clothes and merchandise the finished product. (2) Contractors manufacture apparel from materials owned by others. (3) Apparel Jobbers perform all the entrepreneurial functions of a manufacturing company -- buying raw materials, designing and preparing samples, and selling the finished apparel -- but arrange for contractors to manufacture their garments.

Sewing machine operators make up between 45% and 50% of the work force. Virtually all are women and there is no discernible upward mobility among the operators. Because of the industry's nature -- small plants, the influence of the style factor on planning and production, intense competition, quick product turnover, incentive and piece work wages -- workers are assigned tasks they can do best and fastest within the limitations of production requirements.

Two basic sewing methods are used in apparel making: (1) the single-hand system in which the sewing machine operator performs all or most of the operations on a garment; and (2) the section system where each operator performs only one or two tasks on a specific part or parts of the garment.

The majority of ladies garment makers work under the single-hand system, especially in New York where these single-hand stitchers compose approximately 70% of the occupation and are part of a comparatively skilled garment labor pool. The section system, which requires less skilled workers, is the predominant method for standardized sewing operations such as men's suits and coats, and is also prevalent in ladies apparel where skilled workers are not available, such as in the southeastern United States.

Sectioning involves a long series of sewing operations, assembly-line style, each performed by a separate worker. Section workers may typically be assigned to sew on two or three operations in one day, if possible, in like groupings. Thus, the system attempts to insure a maximum productivity and maximum salary incentive for each employee. Usually, sewers stay on the same general type of operation throughout most of their working lives.

Male jobs in the industry are either in its cutting or finishing segments. The cutters -- around 5% of the total work force -- are precision craftsmen, enjoying the highest prestige and average pay of the industry's labor force. In the cutting rooms of the larger factories the most discernible career progression is evident. In a type of informal apprentice set-up, cutter craftsmen progress from material spreading to color and design matching to pattern marking to the actual cutting of the pattern pieces with electric knives. Some large plants have a four-year apprentice program for cutters. Seniority restrictions are rigidly adhered to in the selection for upgrading. No particular skills are required as prerequisites for entry into this progression. Traditionally these jobs have tended to be father and son type occupations.

Within the finishing operation, pressers, whose base hourly rates rank second to the cutters', press the garment by hand or machine, pack and sometimes tag it. Mostly men, they account for around 7% of the work force. Thread trimmers, almost always women, pass the finished garment over a vacuum-type machine that dispenses with all dangling thread.

There are a number of other production jobs which are likely to exist in a garment factory such as work distributor, stock clerk and packer. In addition, there are, especially for those garments made by the sectioning process, a number of specialties and variations on basic jobs such as button sewer, fitter and shaper. But none of these offer any real advancement opportunities or are part of any progression ladder.

In 1967 production workers in the apparel industry averaged $2.03 per hour, second lowest rate for all makers of non-durable goods.

In the overall industry picture (1) men earn more than women; (2) singlehand stitchers, who complete most or all of a garment in a single operation, earn 20 to 40 cents more per hour than section workers; and (3) workers in large metropolitan areas earn more than those in smaller communities. Cutters and markers are paid on a time-rate basis. They are paid the highest hourly rate of all workers, although some piece rate workers can earn more per week.

Four-fifths of all garment workers -- sewing machine operators, hand sewers, and hand and machine pressers -- are paid by the piece rate wage system. For this reason earnings vary substantially within the same job categories.

*AVERAGE HOURLY EARNINGS: SELECTED OCCUPATIONS BY AREA LADIES GARMENT WORKERS, 1965

	NYC	Dallas	Chicago	Calif.	Phila.
Cutters and Markers	$3.55	$2.18	$3.25	$3.28	$3.36
Pressers, hand	4.94	1.46	2.69	2.33	2.51
Pressers, machine	4.87	1.66	--	--	2.39
Sewers, hand	2.12	1.47	1.85	1.86	1.80
Sewing Machine Operators Section System	2.12	1.58	1.88	1.93	2.18
Sewing Machine Operators Singlehand System	2.81	1.97	2.26	2.27	2.39
Thread trimmers	1.65	1.42	1.53	1.40	1.54

*AVERAGE HOURLY EARNINGS: SELECTED OCCUPATIONS BY AREA MEN'S GARMENT WORKERS, 1966

	U.S.	Mid Atlantic	Border States	South East	Middle West
Cutters	$3.41	$3.69	$2.40	$2.42	$2.67
Pressers, finish, hand	2.99	3.08	2.67	--	1.56
Pressers, finish, machine	3.00	3.19	2.74	2.40	2.49
Sewing Machine Operators coat fabrication	2.31	2.52	2.11	1.81	1.86
Sewing Machine Operators trouser fabrication	2.11	2.26	2.01	1.68	1.84
Tailors, all around	2.43	2.35	2.42	--	2.14
Thread trimmers	1.80	1.80	1.81	1.69	1.52

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*Since these figures were published, increases in hourly earnings average 18%, but this has not significantly affected ratios as they appear.

Standing above and apart from the production process in the industry hierarchy is the design process. Highly skilled technicians called designers conceive, style and shape fabric into sample garments to be copied and mass produced. They are experts who know how to use the manufacturer's resources with a minimum of waste. Pattern makers transfer the designer's idea to paper or fiber board. Pattern graders adjust the patterns to conform to various sizes. These three specialist groups make up the industry's elite.

Traditionally the apparel industry, particularly in major metropolitan areas, has tapped the immigrant flow from Europe to meet its manpower needs. With the curtailment of European immigration, the industry has turned increasingly to black Americans from the South or newly arrived Spanish surnamed Americans to fill the gap.

Good eyesight and manual dexterity are the primary requisites for entry into the garment trade. The General Executive Board of the International Ladies Garment Workers Union in their report to the 33rd Convention in Atlantic City, May, 1968 said that "For the most part, the new entrants do not have any prior experience in garment manufacture and are trained on the job." They further expressed the opinion that on-the-job training "is considered to be one of the most satisfactory training methods in the industry." While many manufacturers would like to take advantage of federal resources to provide manpower training for entry level jobs, the unions have successfully persuaded Congress to exempt the needle trades from any coverage under the Manpower Development and Training Act. The basic reason for the unions' position on this matter is that manufacturers are thus forced to stay near present sources of skilled labor rather than become run-away shops.

Approximately 80% of all apparel workers in the United States belong either to the ILGWU or to the Amalgamated Clothing Workers of America. Workers in the northeastern section of the U.S. are about 95% organized, but the unions have been far less successful in the Southeast and West. Despite problems in these areas, the apparel unions are obviously a powerful voice in the industry's operation and will continue to dictate industry training policies and procedures.

Outside of the cutting department, skill training in the industry involves teaching the trainee basic sewing machine or finishing operations. Although the actual manual skills involved can be taught within several hours, or at most within a day or two, it often takes anywhere from one to twenty weeks for the worker to reach an acceptable piece work level depending on the complexity of the sewing or finishing process. Large shops, particularly in the men's clothing industry, often train their new people in a special assembly line supervised by trainers. Trainees who begin on these special lines actually begin contributing to production within a few hours. Employees are transferred out of this section once they have reached the accepted level of piece rate for the particular process. One large men's clothing manufacturer put the cost of such training at approximately $2,200 per trainee.* But most workers in the industry, particularly in women's apparel, are trained in small, informal (often individual) on-the-job instruction sessions conducted by the owner of the shop or the forelady.

Once an operator or presser masters his equipment, he has the skills necessary for his craft. Except for an ability to adjust his skills to frequent but often slight concessions to style, this is all that is required. The worker achieves advancement, particularly salary advancement, through the piece rate system, by increasing his output.

In small shops there is almost no chance for advancement. Owners or the owner's relatives generally assume the supervisory roles. In a larger shop a sewing machine operator or a presser and packer may on occasion be selected forelady or foreman. This selection is generally based on the employees accumulated on-the-job experience and the supervisor's informal evaluation of the individual. However, since the supervisory job is straight salary, many piece work employees refuse the opportunity, preferring instead the option of increased earnings through the piece work system. Furthermore, many women are not interested in the career potential or status of a supervisory role and prefer the less pressured machine operator positions.

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* This figure, like others supplied by industry spokesmen, is based on the employer's cost in wages to bring a worker in training up to full performance, i.e., able to meet minimum piece work standards. Since the amount does not include the dollar value of goods produced by the trainee nor does it cover such training costs as excess waste or additional supervisory time, it does not appear to be very meaningful as a measure of true cost. However, if one wishes to project the figures supplied by industry officials on this wage cost basis, annual entry level training costs can be estimated at upwards of 25 million dollars.

Thus, outside of the cutter occupations, upgrading opportunities in the apparel industry range between "none" and "hardly any." Does this affect employee morale? Probably not significantly. Thus, although the employee turnover rate was 72% in 1967 compared to 55% for all other manufacturing (with quits accounting for 39% and layoffs, 33%), several factors other than upgrading appear to contribute to this consistently high employee turnover. Major among these are the number of women in the labor force, the seasonality of the product and the marginality of the many small producers.

It is necessary to examine the nature of the apparel industry in order to understand the problems high turnover and difficulty in recruiting new workers cause. Garment type dictates plant size, kind of producer and plant location. About half of all apparel workers make women's clothes. Two-thirds of the workers in this fashion-controlled segment of the industry work in small contracting shops (50 av.) located in the Middle Atlantic region of the United States,close to New York, the primary design and merchandising center for such products. New York's ancillary apparel industries* and her supply of skilled singlehand stitchers also serve to keep women's clothing manufacturers close by.

Slightly more than 1/3 of all garment workers produce men's and boys' clothes and 52% of these work in shops employing more than 250. The majority of these more standard garments are made by manufacturers who perform cutting, sewing and finishing operations on their own premises. New York, Philadelphia, Baltimore, Chicago and Rochester employ nearly half of all men's clothing workers, but suit factories in Kentucky, overcoat factories in Boston and uniform factories in New Jersey employ significant numbers of workers in these industries. The remaining 1/6 of the industry, similarly located and structured, produces millinery, children's wear and miscellaneous household furnishings.

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* This includes special suppliers of goods and services like pleating establishments, lace, button and belt manufacturers.

About 65% of the 28,000 apparel makers work in factories employing under 250 and 38% are employed in firms of under 100.

	Establishments: % of Total	Employees: % of Total
Under 100 employees	85%	38%
100-249 employees	10%	27%
250-499 employees	3%	19%
500-1,000 employees	.9%	10%
1,000-2,499 employees	.1%	5%

Only one plant in the entire industry, a large men's clothing manufacturer, employs over 2,500.

The apparel industry is one of the least mechanized and most highly labor intensive of the manufacturing industries. Its most effective sources of productivity increases have been improved work methods, especially sectioning, plant layouts and more efficient work distribution, rather than more highly sophisticated equipment.

A growing, affluent, younger population's demand, in the next ten years, for the yield of the apparel industries is expected to outpace the industry's present output capability. Even though total employment is increasing slowly (1.1% per year), labor sources presently available are inadequate to carry the burden of such demand and these sources are being tapped by other industries offering better wages and more opportunity. Many older workers, who represent a large part of the present work force, will retire within the next ten years. A more educated work force will also cut into the industry's traditional sources of manpower.

A recent newspaper article reporting on the major labor shortage that is squeezing the New York garment trades, reported that the shortage of sewing machine operators and hand workers "will cost the garment industry millions of dollars in fall orders." "Many shops are able to find workers for only a little more than half of their machines," it goes on to say.* This shortage also affects other apparel manufacturers in the Northeast.

While both union and management occasionally talk in terms of a more effective entry level training program, it appears that even the mounting of such an effort would not do much to solve the industry's basic labor problem. The problem stems from a surfeit of unattractive jobs in a situation of expanding product demand and tight labor, rathern than a lack of entry level training.

Under these circumstances, it is doubtful then that the apparel industry can meet the expanding demand for its products without the stepped-up automation that can increase the productivity of its work force. Considering the rate

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* Herbert Koshetz, "Major Labor Shortage Squeezing N.Y. Garment Center," New York Times, Sunday, August 10, 1969.

of technological development up till now, automation will not be an immediate solvent.* There has been only minor technological advancement in this industry since the invention of the sewing machine. There are new machines being developed for certain aspects of production, but difficulties have been that the basic raw materials for apparel manufacture--limp and hard to manage textiles--create alignment problems not easily handled by machine. Also, style changes make programming machinery difficult and existent machines are prohibitively expensive for the small producers who must cater to the fashion vagaries especially peculiar to the women's segment of the industry. They, who operate on quick turnover and low-profit margins, cannot afford to invest large sums for machines whose usefulness may be cut short by unannounced, quick turns in fashion. In the near future, technological change is more likely to occur in larger factories producing standardized clothing in longer production runs. In order for meaningful change to take place, apparel companies will have to summon capital for technological investment and methods whereby that investment will have long-term value.

The recent development of large apparel corporations like Bobbie Brooks, Villager, Jonathan Logan, Glen Alden,

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* In the short run, at least, large portions of increased demand will likely be met by increased imports.

Kayser Roth, Cluet Peabody, Rapid American and others are portents of meaningful change in the industry's structure. "Although these firms account for only a relatively small proportion of the apparel sector's total output, their share is growing and their impact on the industry is much greater than their statistical share of the market."*

These large firms have capital to invest in plants and machinery and they can make automation more feasibly economical by producing, in volume, a greater variety of products in longer, more standardized production runs. In addition, by focusing on innovative marketing, merchandising and advertising techniques they can improve long-term profit growth for themselves. While small companies will always best be able to weather extreme fashion, these larger companies can assume a bigger responsibility for the industry as a whole.

Automation will likely continue the de-skilling of sewing machine operators which began with sectioning production techniques, but will create the need for larger and better trained maintenance staffs for the new machinery.

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* U.S. Department of Commerce, Business and Defense Services Administration, U.S. Industrial Outlook, 1969. December, 1968.

However, until such changes in the industry's financial structure allow for more meaningful automation and thereby significant occupational shifts, there is little likelihood of change in the industry's training and upgrading practices.

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PRINTING

Printing is primarily a craft industry. The highly skilled printing trades craftsmen, semi-skilled operatives and apprentices account for almost two-thirds of the production work force throughout the printing and publishing industry, and a much higher percentage of those people actually involved in printing alone. This profile is not concerned with the publishing function, those operations in whose name newspapers, periodicals and books are issued, but unfortunately most statistical information lumps this aspect together with the printing processes and makes numerical calculations hazardous. The printing and publishing field can be split into three somewhat arbitrary sectors, each covering about one-third of total wage and salaried employment and roughly a third of the value of shipments -- (1) newspaper printing and publishing, (2) commercial and job printing, and (3) all other printing and publishing, which includes books, periodicals, greeting cards, business forms, and miscellaneous services such as typesetting and photoengraving.

In early 1968, there were 1.05 million total employees in the industry. Of these, 656,000 were considered production workers for an overall ratio of 62.5%. This average, of course, throws little light on the actual relationship of production workers to total employees when the different sectors are taken separately:

	Production Employees in Early 1968	% of Total Employment
Commercial	261,000	78%
Newspapers	176,000	49%
Books	54,000	58%
Periodicals	26,000	34%
Blankbooks & Binding	45,000	81%
Other publishing and printing	94,000	69%

Again, these statistics tend to understate the production work force in printing because those segments of the industry concerned with publishing -- newspapers, books and periodicals -- often have no printing operations. The commercial segment of the industry probably most closely reflects the percentage of production workers in printing alone. Since commercial printers employ the largest number of production workers and tend to introduce most major technological innovations which bear on training, much of the study of the printing industry will focus on them.

The size and geographic distribution of printing establishments vary according to the sector under consideration. In commercial printing 84% of the shops employ fewer than 20 people, and there are only fifteen facilities in the country employing more than 1,000 people. However, the former represents only 25% of total industry employment while the latter accounts for 10%. A more complete breakdown follows:

Commercial Printers

Plant Size	% of Work Force
Under 20 employees	26%
20-49 employees	18%
50-99 employees	14%
100-249 employees	16%
250-499 employees	11%
500-1,000 employees	5%
over 1,000 employees	10%

New York leads all states in production workers with 35,000, Illinois is next with 31,000, then Pennsylvania with nearly 19,000 and Ohio with 18,000. All together these four states account for 57% of the commercial printing work force, but commercial shops can be found in almost any community in the country.

Seventy-nine percent of the country's newspapers establishments have fewer than 20 employees (including editorial, advertising, etc.), but nearly a third of the total employment work in companies employing more than 1,000 people. Another 40% are found in plants with more than 100 employees. In 1963 over 40% of the production workers were working in the Middle Atlantic and East North Central regions, with New York State by far the largest employer (19,500), followed at some distance by Pennsylvania and Illinois.

Only 15% of periodicals printers employ more than 20 people, but 44% of all employees are in establishments with more than 500 people. Again, there is a high percentage (60%) of production people in the Mid-Atlantic and East North Central areas.

Forty percent of the book printing plants employ more than 20 people but well over a third of the total employees are in plants with more than 500 people. Almost three-fourths of all book printing employees are in New England (Massachusetts is the second largest book printing state), Mid-Atlantic (New York is the largest with 5,400 production workers), and East North Central (Indiana is third with 3,300 workers).

There are ten unions in the printing industry, several just struggling to hold ancient craft jurisdictions, and only four of major importance: the International Typographical Union (plus an independent affiliate in New York City, the Amalgamated Lithographers of America), the International Printing Pressmen & Assistants Union of North America, The Lithographers & Photoengravers International Union, and the International Brotherhood of Bookbinders. These four unions cover the bulk of the organized work force and the first three are often in battle with each other as well as with management on the issues facing the industry.

Open shop employers' groups note that the major graphic arts unions can claim as active U.S. members about 41% of all the industry's total production workers. It is true statistically that the unions have about 260,000 members out of the 650,000 people the Labor Department considers production workers, but many of these are in clerical and non-printing jobs outside the logical organizing effort of the unions. It appears more likely that about two-thirds of the printing employees in labor's normal purview are members of unions. The large number of small shops limit the amount of organizing open to the unions and there are also significant unorganized blocks among the larger companies. R. R. Donnelley and Co., the largest private printer in the world, is largely unorganized. Nevertheless, the unions exert a good deal of influence on the industry despite their lack of extensive contractual grip. In most metropolitan areas they can dictate the wage rates which will prevail if unorganized employers expect to attract workers. The same condition will often apply for fringes and benefits.

The industry's wage levels are high. In commercial shops average weekly earnings in 1967 were $129.36 compared to $102.03 per week for all non-durable goods manufacturing, and $114.90 for all manufacturing. The lithography end of the commercial printing business averaged $135.47, about $8.00 more per week than the letterpress. Wages vary widely from city to city, with New York compositors getting $187 a week now, compared to Louisville at $139. The same kind of spreads are present in other occupations.

There has been considerable evolution in the improvement of printing processes, primarily in the conversions of pressrooms from strictly letterpress to combined letterpress and offset.* This has not generally created any pools of unemployed letterpressmen, but rather opened up new opportunity for many workers (especially the brighter and more ambitious) to move along faster to the offset. Changes in the composing room to greater use of photocomposition methods have also been accomplished by bringing new workers in, or retraining existing workers without great dislocation, but computerized methods of typesetting pose a decided threat to the absolute numbers of printers needed in the future. Bindery operations have largely involved new configurations of jobs, caused by new types of conveying and collating equipment, but the retraining demands have not been that great.

These technological changes have played a large part in the rapid growth of the commercial industry. It has been growing in nearly $500 million increments of total shipments each year (or around 6.5% per year) since 1963, making it definitely one of the growth industries but one also marked by a highly fragile individual success. Competition is extremely keen for participation in the printed media explosion, and the business failure rate is said to be very high mainly because it is possible to start a business on a small investment and many small entrepreneurs, often ex-printers with limited business experience, try to make a go of it.

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* Letterpress printing involves contacting ink and paper with raised, reverse metal type. Offset printing calls for photographing the typeset copy, placing the negative on the press, and printing by injecting ink which adheres only to the printed portion of the negative. Offset generally gives a cleaner product. It is widely used in the quality-conscious commercial sector, while at the moment only about one-third of daily newspaper plants have installed offset equipment. By 1973 two-thirds of newspapers are expected to have converted but they will account only for one-eighth of total newspaper output (measured by consumption of newsprint).

The newspaper segment of the industry has also exhibited some growth although somewhat more modest than the commercial part of the industry. While the number of establishments in the industry has decreased about 3% between 1958 and 1967 (from 10,577 to 10,307) circulation has increased about 13%, employment about 15% and shipments more than 60%, from $3.6 billion to $6.1 billion. Book printing growth has also been significant in that the value of shipments have more than doubled since 1958, and employment has increased by 57%.

There are three basic areas in the print shop: the composing room (where type is set), the pressroom (where plates with type are put on rolls or flatbeds and imprinted on paper), and the bindery(where binding, collating, and stacking is performed). All three areas are undergoing much technological innovation and modernizing. They form the principle boundaries for the unions, contain occupational structures that vary considerably between union and non-union, and operate in much different ways depending on the type of printing performed (commercial, newspaper, books, periodicals, etc.).

Composing room occupations, which involve approximately 40% of the industry's production workers, include such occupations as compositors, typesetting machine operators (linotype or intertype), make-up men, photoengravers and stereotypers and electrotypers. The mix of these occupations within a composing room will, of course, depend upon the type of printing being done and the size of the shop. The tasks of the men in the pressroom (about 15% of the work force) vary from one shop to another because of the differences in the kind and sizes of presses used. For example, small commercial shops have relatively simple presses, often hand fed, while at the other extreme are the enormous web-rotary presses used by the larger newspapers, magazines and book printing plants. The bindery workers vary from the skilled bookbinders who have been trained in all bindery processes to workers classified as bindery hands who work on a single process (in smaller shops a hand may work on two or three processes) such as cutting and trimming, assembling, sewing, gluing and covering the pages of a printed product. Bindery workers account for about 40% of the production work force.

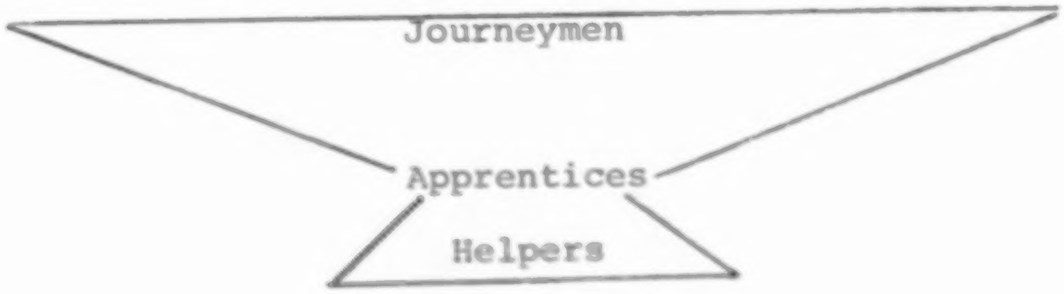
As noted earlier, lithography or offset printing has begun to replace letterpress operations. This process, which requires somewhat different skills from letterpress printing, has modified or replaced several traditional printing occupations and includes such job titles as cameraman, lithographic artist, stripper, platemaker and lithographic pressman.

Unionized commercial shops: Normally new employees enter one of the three printshop areas as helpers, and currently, industrywide, there is probably one helper to every three journeymen. From the helper ranks are drawn the apprentices, who can be selected in various ways. To begin with, the apprentice candidates must be at least 18 and often not more than 28 years old, be physically sound, possess a high school diploma or equivalent, and have been employed at least 6 months in a shop. These are the normal standards, although some unions have national minimum standards including lowering the high school years to two and upping the age limitation, and giving weight to experience.

The selection of apprentices out of those minimally qualified varies considerably across the country. In New York, the typographers union (ITU Local No. 6) requires candidates to pass a reading and mechanical aptitude test administered by Columbia University for all apprentice positions open in the greater New York area. Normally, however, there is no areawide standard test but rather an informal kind of testing which the particular shop can administer, and, indeed, formalities are abandoned entirely in smaller cities. In addition to the test scores, weight is sometimes given (as by the pressmen) for the amount of work experience, the extent of academic or technical education, and, in most cases with all unions, appearance and character judgments made during an interview with joint company-union apprenticeship committees. (The New York areawide testing procedure was largely in response to charges of all-white print shops wherein fathers and sons tended to exclude qualified black applicants.)

Notification of apprentice openings is contingent on the ratio of apprentices to journeymen which the unions have established. This usually means that there should be at least three journeymen in a shop before one apprentice can be hired, and thereafter the ratio of journeymen to apprentices should run at 5:1.

Several sources have suggested that the actual ratio of apprentices to journeymen is running around one apprentice to every 12 to 15 journeymen. In the New York area, for instance, there is an informal freeze on allowing apprentices into newspapering because of the surfeit of out-of-work journeymen caused by the newspaper shutdowns. In the New York ITU local's commercial branch there are currently 5,500 members, of whom only 400 are apprentices. This ratio of 13:1, and that of the helpers, of which there are 1,450, might be diagramatically expressed as an anvil showing the occupational structure in New York printshops:



If the candidate satisfies the requirements for apprenticeship, he is indentured to a specific shop (usually the one he started with, although in New York he may, if he wishes, go to any shop with a legitimate opening) for a period now tending to run for 4 years. The International Typographers Union recently allowed locals to cut back the period from 6 to 4 years, as did the Pressmen; but the Bookbinders are still at 5. Apprentices normally start at 60 to 65% of the journeymen's rate and progressively get increases through the four years. (The pressmen and bookbinders move men 5% every six months, the typographers 10% a year.)

Generally speaking, the unions have established the guidelines for what the apprentice is to be doing during his indenture. In most locations around the country the apprentices really perform in a short time many of the same duties as the journeymen, while at the same time taking some form of correspondence courses from the international headquarters. In Los Angeles, Chicago and New York, however, the curricula also includes -- at least for the compositors (ITU) -- one full day (3½ hours on company time and 3½ hours on his own time) of formal classroom instruction in schools jointly sponsored by employers and unions. Small print shop owners claim this cost is often prohibitive enough for them to make the hiring of journeymen more economical than the training of apprentices.

Much has been said about the length of time in apprenticeship and how unrealistic is its length. A certain recognition of this has been manifested in the union's cutting back the time required from 6 to 4 years. Although there is a good deal of disagreement on whether this is still too long, most printing industry officials believe that it probably takes about this four-year period to make a fully competent craftsman in the graphic arts field, a man with truly skilled ability to handle most kinds of equipment. It is also true that an apprentice can sometimes reach journeyman status without serving a full four or five year apprenticeship. Thus, in most contracts, there are provisions for "upgrading" an apprentice and letting him skip periods of indenture time (usually not more than two years in total, or one year at any one time). There are many examples of open shops training green employees in certain specific skills in a matter of months, but this is often in shops where production requirements and pressures allow the employee more non-productive training time.

It should be noted that helpers can remain on the job their entire working careers if they don't qualify or choose to become apprenticed. They perform various types of unskilled or semi-skilled work such as moving equipment, galleys, and type in the composing room, assisting machinists who repair the presses, and working as feeders in the bindery.

Looking at an extremely diverse industry in a very general way, it can be said that there is little in the way of "stepped" progressions once a man has his journeyman's card. However, in the larger companies there are some progressions, particularly in the pressroom and the bindery. The nation's largest private single location printer, McCall's in Dayton, has about 6 or 7 job classifications in the pressroom which are paid at different rates, with a pressman at the top and 1 or 2 assistant pressmen under him who can be apprentices or journeymen. In the bindery there is also a skill scale headed by the chief operator of a binding machine and going down through certain job titles about 6 or 7 levels down. Somewhere at the midpoint a wedge is driven in, and all jobs above can only be performed by journeymen and all below by apprentices. The typographers, those in composing rooms, tend to specialize in certain skills and basically have only two options that might correspond to upgrading. Either the man can prove himself so proficient as a compositor or typesetting operator that the employer will pay him well over scale in order to keep him in the shop or to keep him operating at a high rate, or he can move into supervision.

Open commercial shops: The open shop employer has much more flexibility in regard to his work force. He will generally stick rather closely to the incremental salary improvements given his workers, who correspond to apprentices in union shops. Beyond that, the non-unionized employer will usually decide what skills his men will learn (often with a great assist from the local, open shop, employer-sponsored outside school) and where the man will be used day-to-day depending on work loads. In the union shop, compositors and pressmen and bindery workers never go into each other's areas, but the open shop employer can move people when certain departments are overloaded with work, and also can shift beginners around to work areas where he believes they will be most effective. He has the freedom to decide what number of trainees he might have around compared to journeymen and he is able to avoid confrontations with the union on such matters as the manning of equipment, firing, hiring, and wage rates. On the latter point, many commercial open shops pay slightly more than union shops -- both to avoid the allure of unionism for the workers and to keep them. This is certainly true in New York and other areas where the unions are strong.

Beyond journeyman, a printing plant worker can aspire to foreman (a union job in organized shops), but this job is often less desirable to him -- even though foremen are paid around 20% more than the journeyman rate for straight-time -- because he loses the opportunity to make frequently accessible overtime pay.

Most print shops, both open and closed, require new employees to demonstrate capability to become journeymen. This means the industry has among the highest standards of any production industry, especially in regard to education requirements, or previous experience. These standards have been used in the past to exclude Negro and other minority group members, but this situation is now improving. According to EEOC statistics, Negroes hold only 1.2% of the craft jobs but now make up about 7.5% of the apprentices and learners. They are, as in most other industries, highly overrepresented in the laborer and service job categories.

Seniority is not basically an issue in upgrading. It is an issue only when applicants of equal ability and aptitude are applying for a limited number of apprentice slots. It is now also becoming an issue when training opportunities on new equipment arise and when layoffs occur because of new technology.

There is probably both more and a greater variety of training in this industry per production worker than in any other. Most of it is on-the-job training, but apprentice training can also include formal school one day a week, correspondence courses, and even visits to vendors. Journeymen, faced with a fairly rapid rate of change in the type of equipment used, are also retrained in formal ways. First of all, the company may set aside some time in its plant for nonproductive work, to demonstrate new equipment. Or the lead man on a given crew (in the pressroom or bindery) is sent to the vendor's, or to a competitor, to learn how to operate, say, an offset press that is being introduced. He then returns to the plant and trains the rest of his crew, who then fan out onto other new presses as lead pressmen and trainers of new crews.

The unions, not by any means wholly progressive, have shown a great interest in protecting their workers' jobs by developing so-called "jointly-sponsored" schools. The most famous of such schools is the Typographers' in Colorado Springs, which takes journeymen back to school for refresher training at an impressively equipped training center, and from which the students are expected to convey their instruction to others at the home plant. (This schooling can be on the man's own time, or at company expense, or half-and-half.) The pressmen formerly had a similar school in Tennessee but it was closed because of the expense both to the union and the pupils. Other local training centers are jointly run by the unions and employers (ITU and Printers League in New York, Amalgamated Lithographers and Lithographic Printers, also in New York, and similar operations in Chicago and Los Angeles), or sponsored solely by the open shop employers in areas like New York, Chicago, Los Angeles, Cleveland, Nashville, Columbus (O.), and Philadelphia. While this level of formal training activity would seem unusually high, it does begin to express the training load facing a craft industry undergoing greatly increased mechanical efficiency.

Within the context of these general training policies, the industry is now also faced with the increasing problem of finding "qualified" entry level employees -- that is, those with the required apprentice qualifications. It is not felt that reading and math comprehension can be modified much and may in fact become more important. Printers also express the feeling that because modern printing processes, especially in the lithographic area, often require a knowledge of chemistry and other sciences, they prefer graduates to academic high schools over vocational school graduates whose knowledge of the sciences is generally more limited.

The vocational schools were not highly regarded by the printers interviewed for this profile. Their equipment is usually out of date, their instructors often of mediocre calibre, and -- a complaint especially singled out by two employers -- the schools are required to turn out productive work for the local school boards. The amount of this work is usually so much that adequate training cannot really be conducted, and the graduates come out only slightly more prepared for printing occupations than do regular applicants, and without the academic knowledge. Some observers skeptically believe that in this instance employers are really complaining about lost business.

Regular high school graduates are not showing the interest in the graphic arts field which will be needed to meet the manpower demands projected over the next decade for printed media, employers say, and national trade officials are grappling with ways to attract the kind of qualified people needed, in the open shops especially. For union employers with the need for apprentices, this might be traced to the discouraging length of the indenture. But non-unionized employers, who generally reward ability with proportionate advancement, are finding that often the people they want are going on to college.

The actual job training, then, is usually adequate, whether it be in company programs (open shops with such structures have very high retention rates for their trainees), an association sponsored school in the off hours, or a joint union-employer school. The only problem seems to be developing around the requirement for greater all-around academic proficiency and industry's inability to conduct this kind of training. Even one large printer whose job training is considered the model in the industry, has been accused by one very informed source of falling down in this regard, and suffering attendant quality problems.

If the open shops have a problem in getting new workers despite vigorous promotion efforts to lure "qualified" people into the industry, the closed shops appear to be satisfying their need for help via the union hiring hall. This is due to several factors:

One, of course, is the prohibition on the number of apprentices allowable, which is usually one to every five journeymen. Out -of-work journeymen must be hired first if this ratio is not met in a given shop, and employers often prefer journeymen anyway because of the expense of training apprentices (chiefly in the nearly full day of nonproductive training time the beginner is allowed). As previously indicated, the actual apprentice/journeyman ratio around the country is running around 1:12-15. What this seems to indicate is that unions have rather effectively played a role in making fewer apprentice openings available -- of much less concern to one local union leader interviewed than the matter of keeping the jobs of those now employed safe from automation -- an attitude which in the short run is hard to fault. Contributing to the lack of apprentices is young people's disenchantment with the long indenture period and its failure to reward ability -- even though the company-sponsored programs usually run only slightly less than the unions'. Several observers (non-union) have insisted that the time length is about right to make a fully skilled craftsman. But if people were trained on nonproductive work, they could be intensively trained to be competent printers in a matter of 6 to 9 months, as proven in a fully operating Rand McNally plant with no experienced workers that sprang up in the hills of Kentucky.

The industry's relatively low turnover (about 20% below the manufacturing average for "quits") also contributes to a certain sanguinity about the labor supply. However, this low turnover, coupled with the limited number of apprentices being accepted, indicates an increasingly older craftsmen work force which will begin to rehire in large numbers during the latter part of the 1970's.

So while union shops apparently have yet to face the kind of manpower needs already confronting the open shops, both sectors will find themselves in a "critical" state of shortage in another 5 to 10 years, according to one key labor official.

As companies militate for more flexible use of their work force, especially in regard to computer usage in the composing rooms, and perhaps in further shortening the apprentice period, there is sure to be increasing difficulty with unions whose membership is usually insistent upon maintaining their hegemony over the apprentice format, their overtime hours, and their workloads. Future needs are defined to the extent that it is clear the demand for printed materials will exert a moderately increasing need for workers (not as high as recently but around 3,000 to 5,000 more people a year); and companies are certain to attack the unions' restrictive practices which are promoting an inevitable decline in the number of workers who qualify for entry into the industry.

While better upgrading techniques may have some effect on industry manpower shortages -- certainly the time required to become proficient, and the rather limited opportunities for advancement available once one becomes a journeyman might be somewhat discouraging to new employees -- this does not seem to be the primary answer. More likely, the problem is the same one plaguing all the skilled worker groups (except perhaps building and construction trades) in that they are unable to attract the kind of "qualified" candidates who formerly entered the crafts. These young people are now either joining the mass higher education parade or prefer to take white collar jobs such as computer programmer, which offer a better "image" than the traditional crafts.

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AIR TRANSPORTATION

The five major classifications of commercial air carriers are the focus of this study.* They include:

Domestic Trunk Carriers -- The eleven companies operating high density traffic routes between principal U.S. traffic centers.

Domestic Local Service Carriers -- The thirteen companies operating routes of lesser traffic density between the smaller traffic centers and between these centers and the principal centers.

International and Territorial Carriers -- The fourteen U.S. flag companies (including 10 which also operate as domestic trunk carriers) operating between the U.S. and foreign countries, other than Canada, and over international waters.

All Cargo Carriers -- The five scheduled air freight companies.

Supplemental Air Carriers -- The thirteen companies authorized to perform passenger and cargo charter services, supplementing the scheduled service.

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* There are five other Civil Aeronautics Board classifications: Intra-Hawaiian Carriers, Intra-Alaskan Carriers, Helicopter Carriers, Intra-State Air Carriers and others (air taxi and air freight forwarders).

The industry employs approximately 275,000 persons, with individual companies varying in size from under 100 to 50,000 employees. Five major carriers with levels ranging from 30,000 to 50,000 persons account for over 60% of the industry's employment. An additional 20% are employed by six carriers with employment levels ranging between 5,000 and 16,000. The remaining 20% of the employees are spread over the ten classes of commercial air carriers which include several hundred different companies.

Employment in this industry has grown rapidly (if somewhat fitfully) in the past 20 years and this trend is expected to continue until at least 1975. The Bureau of Labor Statistics reports that:

> "Between 1947 and 1957, employment in air transportation grew at a compounded average annual rate of 6.2%, rising from 82,000 workers to over 148,000. In the 1957-64 period, the growth rate slowed to 3.7% annually reflecting the impact of rapidly advancing technology. Employment in 1964, nevertheless, exceeded 190,000. Jet age employment has been characterized by alternating periods of rapid and slow growth. Of 42,000 workers added since the first jet was flown, 23,000 were added before 1960 and 10,000 after 1963. In the future, growth is expected to stabilize at about 4% per annum, with the level of employment approaching or exceeding 300,000 by 1975."*

The reason for these employment increases can be traced to the ever greater demand for air transportation by all segments of the economy. For example, the growth of overall revenue ton-miles (combined passenger and cargo ton-miles) increased at an average annual rate of 15.8% between 1947 and 1957 and at a slower rate, 10.1%, between 1957 and 1964. According to projections by the FAA, passenger traffic transported by U.S. Certified Route Air Carriers is expected to grow at more than twice the rate of the rest of the national economy through the decade of the 1970's.

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* U.S. Department of Labor, Bureau of Labor Statistics, Technological Trends in Major American Industries, (Bull #1474, Washington, D.C., 1966.)

To this growth can be added the industry's expectation of a build-up in air freight handling at a rate of more than 20% compounded annually over the next few years and a projected increase of 50% in the number of aircraft during the period 1968 to 1980. This overall growth will naturally have a great effect on manpower needs. However, expectations for expanded manpower needs must be tempered by a continued rise in productivity to meet service demands. The air transportation industry has experienced the largest increases in output per employee indexes of any major industry in the United States -- an annual average of almost 8% per year since 1947. The total private economy output rate increased by an annual average rate of 2.8% during this period. This has resulted in industry productivity levels in 1966 which were five times greater than in 1947.

Specifically, output per man hour (as measured by passenger and freight-ton miles) in the twenty years from 1947 to 1967 increased 546% from 37.4 to 204.5 units per man hour. According to a Civil Aeronautics Board study, the primary reasons for this tremendous increase are attributable to two major causes:

> "First, the growth of traffic itself makes possible greater output of ton-miles for each working employee. Bigger, more economical planes can be utilized. And 'overhead'employees, those whose employment does not vary proportionally with traffic, work more efficiently when ton-miles output is growing fast. Secondly, but probably of even greater importance, has been the change over to bigger, faster, far more economical jet aircraft." *

In traditional economic terms, the airline industry is not labor intensive. Hardware requirements call for extensive capital outlays and this investment in operating property and equipment (which has done much to increase productivity and hold down employment levels) has increased markedly over the past few years. Thus, in 1952 the gross capital investment per employee in the air transportation industry was less than $10,000, but by 1967, this figure had increased to over $30,000 per employee.

The industry is characterized by a large number of different crafts or occupations due primarily to the wide variety of skills required to provide for safe air transportation. Almost 100% of the blue collar and service jobs are union organized along these occupational lines. Only one major airline has a contract covering its white collar workers although several companies have contracts with such professional

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* Civil Aeronautics Board, Bureau of Economics, Trends in Productivity in the Airline Industry 1957-65, (Washington, D.C., Oct., 1960.)

groups as the pilots, meteorologists and nurses. In all, approximately 55 to 60% of the industry's work force is organized. Also of significance in understanding the industry's employment structure is the high percentage of women -- currently about 26% and slowly rising -- who are employed.

The variety of crafts and occupations result in several different occupational entry ports. Some, such as the ramp service occupations, require few prerequisites. Others, such as stewardess, have rigid personal standards but require little previous experience or training; and still others, such as mechanics, pilots or meteorologists, require either extensive prior experience or training.

Over 80% of the work force is in five distinctive occupational clusters. They are as follows:

Occupations	% of Work Force
Pilots	8.1%
Flight Attendants (Stewardess)	6.3%
Aircraft & Traffic Service (Ramp Service)	25.9%
Maintenance (Almost all mechanics)	20.6%
Agents	21.2%
Other*	17.9%

Progression occurs almost exclusively within each of these craft clusters because of the basic lack of skill transferability from one grouping to another. The following are generalized progressions for the occupational clusters.

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* Contains such diverse occupations as flight engineers, porters, guards, communications workers and various management positions.

Primary entry ports are indicated by total capitalization.

Pilots

2ND OFFICER
1st Officer
Sr. Pilot
Executive Pilot*

Flight Attendants

STEWARDESS TRAINEE
Sr. Stewardess
Purser*

Aircraft & Traffic Service

AIRCRAFT CLEANER or
UTILITY MAN
Lead Man
Foreman*

Maintenance

APPRENTICE
MECHANIC
Line Mechanic
Inspector
Lead Mechanic or
Lead Inspector
Foreman*

Agents

RESERVATION CLERK
Agent
Lead Agent
Sr. Reservation Clerk
Supervising Agent*

Wages in these occupations are generally on a par or above comparable work in other industries. Below is a compilation of wage ranges for various major occupations:

Airline Pilots	$12,000 - 35,000	including flight pay**
Airline Stewardesses	5,500 - 10,000	" " "
Senior Clerks	7,500 - 9,000	
Lead Agents	6,000 - 7,070	
Agents	5,000 - 5,800	
Clerks	4,700 - 5,600	
Lead Inspectors	9,300 - 9,600	plus differentials**
Inspectors	9,000 - 9,300	" "
Lead Mechanics	9,000 - 9,300	" "
Mechanics	7,800 - 8,500	" "
Lead Ramp Servicemen	6,500 - 7,500	" "
Ramp Servicemen	5,500 - 6,600	" "
Lead Cleaners	6,000 - 6,400	" "
Cleaners	5,400 - 6,000	" "

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* Indicates first level management position.

** Flight pay is additional reimbursement based on the number of hours and type of aircraft flown. Differentials refer to additional reimbursement for shift work, geographical location and licenses

In addition to the usual fringe benefit package -- health insurance, pensions and the like -- the airlines also offer reduced fare travel for all employees and their families, a benefit which can add significantly to real compensation.

There is almost no hiring-in outside of the entry port positions. This is primarily because of the seniority requirements discussed below and secondarily because of differences in operating techniques among the airlines which would require substantial retraining. The only exception is in the mechanic cluster where, despite seniority loss, occasional hiring-in is done above the entry level because of individual desires to change locations.

Entry level selection techniques for each of the progressions differ depending on the complexity of the job. Pilots must come to the airline with at least 500 to 1,000 hours of flying time, at least two years of college and be able to pass elaborate aptitude, achievement and psychological tests. Until recently, all other positions required at least a high school diploma and involved some testing. Entrance requirements have been relaxed in the low skilled maintenance and custodial positions, particularly in response to the hard-core training effort, but also because these are high turnover positions and have been becoming harder to fill. Line mechanics must in all cases be licensed by the FAA, and for the major airlines, have at least four years experience in the field. Those mechanics who work in the overhaul shop or on ground equipment do not need a license although the airlines prefer one, but such jobs generally require 18 months of experience in airframe or power plant work, usually acquired in the armed services. Stewardesses are put through an intensive resident training program during which they are evaluated on the basis of performance.

It is not known whether the recent attempts of major air carriers to recruit more blacks and other minorities has made any significant dent in the ethnic distribution of employees. It is clear that past recruitment and screening techniques were not designed to maximize minority employment in the industry. For 1966 the U.S. Equal Employment Opportunity Commission reported the following ethnic breakdown:

Orientals	1.7%
American Indian	.2%
Spanish Surname	3.3%
Negro	4.2%
White & Other	90.6%

Of the total minority group employed, a substantial proportion are to be found in the lower skilled jobs, in an industry with relatively few low skilled occupations:

	Minority Group	Total Industry
White Collar & Prof	27%	54%
Craftsmen	21%	24%
Operatives	17%	10%
Labor	14%	3%
Service Workers	21%	9%

Regardless of background, once hired, an employee is almost sure to receive substantial amounts of training at the carrier's expense. While individual firms contacted in the study were not willing or unable to furnish training cost information, it is well known that the industry is one which spends a significant amount on formal training efforts. Several experts expressed their beliefs that airlines devote more resources to training than any other major American industry.

The extensiveness of the effort is borne out by cost information submitted by the airlines to the federal government. Analysis of this data indicates that the total payroll cost during 1968 for those in training and those doing the training was more than $125 million. This figure does not include cost of equipment, plant or other non-personnel items, which are, no doubt, extensive.

By far the largest proportion of training dollars was used for flight service training for pilots and stewardesses. Approximately $82 million or 65% of the total expenditure went for this group. However, training expenditures for other groups were also significant. For example, maintenance training during this period totaled over $18 million dollars despite the fact that most mechanics are trained prior to being hired. A complete breakdown of training payroll costs by CAB departmental classification follows:

Category	Payroll Costs	% of Total
Flight Training	$ 82,079,000	65.3%
Maintenance	18,584,000	14.8%
Air Craft and Traffic Servicing	19,373,000	15.4%
Promotion, Reservation & Sales	3,269,000	2.6%
General Administrative	882,000	.7%
Servicing Administration	1,577,000	1.2%
TOTAL	$125,764,000	100.0%

The initial formal training for occupations in the aircraft and traffic servicing and agent classification ranges from three days for the entry port job in aircraft and traffic service (aircraft cleaner) to seven days for the entry agent job (reservation clerk). Training usually consists of orientation, limited classroom instruction, observation, and then on-the-job training. Beyond this, there is little in the way of formal training until the employee reaches the lead job, at which time he is put through a supervisory techniques course described below.

Almost all licensed mechanics receive their training before going on the job in private vocational schools which prepare them for the FAA examination. The cost of such a program may range from $1,800 to $3,000, all of which comes out of the student's pocket. As employees, line mechanics recieve at least 40 hours of training a year to keep them abreast of changes in equipment. Employees in the unlicensed mechanic classification, which includes such diverse occupations as refrigeration mechanic, machinist, auto mechanic, etc., as well as overhaul men (those who work in the shops on one piece of equipment) come to the airline already trained, either in another industry or in the armed services.

There is a small apprentice program for aircraft mechanics, but only two major airlines participate in the program. It is restricted to persons between the ages of 16 and 25 who are engaged by these carriers to serve a maximum of four years on the job. The program primarily consists of two thousand hours of classroom and on-the-job instruction in all aspects of the mechanical crafts. The apprentice openings are first offered to all employees within the companies. However, a written test screens out more than 90% of the applicants, and recently the airlines have had to go outside the company for apprentices. Both labor and management officials felt that the mechanics trained through these programs are the "best mechanics in the business."

Weight of seniority in advancement is crucial in the organized occupational clusters. Labor contracts provide for the promotion of the senior-most qualified employee through the post and bid process at a particular point or geographical location. If there are no bidders at that point, the job is posted system-wide, and all qualified employees may bid on it with the most senior employee getting the nod. Ability is generally a minor factor which is assessed by the supervisor by a subjective evaluation system. An evaluation of "not qualified" rarely occurs and when it does, is a grievable matter.

Selection in the non-organized occupations, (the agent occupational cluster) is based primarily on the supervisor's evaluation. In this regard, several airlines have developed surprisingly similar "Management Potential" identification programs. Through this program a supervisor may recommend a non-supervisory employee for enrollment in a two week problem-solving and supervisory techniques course which is conducted by the central training staff. Although the actual promotion for the individual may be a year or two away, this course serves the dual purpose of exposing the employee to the skills he will need for future assignments, and additionally permits management to acquire a more detailed picture of the employee's capabilities.

Because many of the skills associated with airline operations are unique and therefore not generally available in the labor market, the industry has paid close attention to the problems of anticipating future skill needs. Most major airlines have established departments of personnel planning that attempt to forecast future skill needs and to develop programs (either recruiting or training) to meet these needs. Thus far, airlines have been able to meet their needs in all skill areas except certified mechanics with relatively little difficulty.

Although the airlines have complained for the past few years of a shortage of licensed mechanics, with few exceptions they have been content to let private vocational schools do the training and have adjusted to this shortage through overtime work.* This practice has continued despite the machinists union's support for the increased use of internal apprenticeship programs.

One company has experimented with a program which is designed to bridge the gap between licensed and unlicensed mechanics. The program is funded under provisions of the Smith-Hughes Vocational Education Act and is operated under the auspices of local boards of education. The company's training department has developed the curriculum; and company personnel, paid by the board of education with federal funds, act as the trainers during their off hours. The program is open to all airline personnel but an effort is made to restrict the participation to those who have had some mechanical experience. Employees participate on their own time and the company makes an effort to arrange shift work accordingly. This program has the dual benefit of meeting company manpower needs and bridging a gap which existed between the licensed aircraft mechanic and other less skilled positions within the company structure. This company has further used these government resources to good advantage in training for specific anticipated skill needs. For example, after developing a new method of spray painting that required skills not available within the company, a course to teach these skills was designed and instituted under the Smith-Hughes program.

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* The actual level of this overtime is unavailable since the Bureau of Labor Statistics does not publish overtime statistics for this industry.

One problem now concerning management and labor is that of moving low skilled maintenance and clerical employees, hired under the airlines "hard core" training effort, out of entry level positions. Many of those hired do not have a high school education, which is a requirement for almost all responsible positions. Furthermore the importance of seniority tends, on the one hand, to prohibit any special training for these employees and on the other, to eventually require almost automatic upgrading to more skilled positions. Officials contacted for this study had not found a way out of this apparent dilemma. All agreed that the seniority provisions could not be altered; and basically, because of this, they were generally skeptical about the use of the upgrading portions of the Department of Labor's MA-5 program.

The problems cited above should be regarded as minor in the context of the general employment picture. Generally, the industry's training establishments have been able to respond adequately to expanding manpower needs by drawing on the large numbers of young people anxious to work in this field. Little prospect of a change in this situation is currently forecast.

Although no definitive figures on turnover are available for the industry, personnel directors in the field report that turnover is low except for those occupations filled by young women, and a few poorly paid traditionally dead-end jobs such as aircraft cleaner and porter. Even in the female jobs, there is little problem, because the industry has adjusted to the turnover by aggressive recruitment programs, ongoing training and by capitalizing on the glamour airline employment connotes.

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TELEPHONE COMMUNICATIONS

The telephone industry includes those companies primarily engaged in furnishing telephone communication service, either by placing the parties in point-to-point vocal conversation with each other (presently accounting for 95% of telephone volume), or by furnishing facilities for the transmission of radio, television and other electronic signals via network or point-to-point contact.

The industry is best described as American Telephone and Telegraph -- and all the rest. Ma Bell, as the company is known within the industry, owns and controls 80.7% of the telephones currently in service in the United States (88 out of 109 million) and 90% of the telephone transmission facilities. The "Telephone" portion of A T & T is comprised of twenty quasi-autonomous operating companies which account for more than 85% of the industry's revenues.

Bell System operating companies range in size from Diamond State, which employs some 1,400 non-supervisory employees in Delaware, to New York Telephone's 72,000 workers. All companies in the system have the same broad occupational structures, but smaller units tend to lump jobs together and blur the distinctions which exist at the larger divisions.

These structures are geared to providing a substantial portion of the work force opportunities for eventual movement upward. But all is not well. Manpower problems of the telephone industry have been brought into sharp focus in recent months as customer complaints over the quality of service, particularly in major metropolitan areas, have risen to a chorus. For what is believed to be the first time in its corporate history, A T & T was summoned to "informal discussions" with the FCC to account for the quality performance of the Bell System. Three factors, in the main, have precipitated this current crisis in the normally efficient and unflappable industry: first, the failure of the operating companies to provide sufficient capacity to handle the soaring volume of telephone usage; second, the complex technical problems inherent in expanding the system's capacity, once the mounting demand for service was apparent; and third, the time lag required to recruit and train the new employees, particularly in the plant and traffic departments, who will install and man the expanded facilities.

There is no more harassing problem facing telephone company personnel departments than the constant search for replacements for those who leave their jobs and leave the industry. While this problem is typical of those industries that employ a high percentage of women, it is particularly vexing to the telephone industry because the results of turnover are more immediately apparent to their customers as quality of service deteriorates. Approximately 25% of telephone operators leave their jobs every year -- and very nearly the same proportion of clerical workers. Turnover among plant craftsmen is substantially lower, although the companies are having increased difficulty in holding younger men. The best current estimate is that turnover requires the replacement of roughly 100,000 non-supervisory workers a year.

This turnover is the main basis for entry employment in the industry because total non-supervisory employment is rising very slowly. In fact, from 1957 until 1963, telephone industry employment declined both in absolute terms and as a proportion of the growing civilian labor force -- from 782,000 to 685,000 and from 1.20% to 1.01%. Beginning in 1964, total telephone employment increased at a rate slightly more rapid than the growth in civilian employment, reaching a new high of 815,000 in 1968, with A T& T accounting for almost 85% of this total. A slow growth though 1975 in absolute numbers of employees has been forecast.

Non-supervisory workers have declined as a proportion of total employment in the telephone industry, from 83.3% in 1958 to 79.1% in 1968. The trend has been consistently downward during this ten-year span. The two factors which appear to have contributed most to this trend are the decline in the number of telephone operators' jobs and a 50% increase in professional and semi-professional jobs.

The Communications Workers of America, AFL-CIO, represents two-thirds of all non-supervisory employees in the

Bell System, and is by far the dominant union in the industry. The development of CWA, which was founded in 1949, has been keyed to its struggle to break away from the "company union" mold by establishing and expanding an identity of its own making, apart from, and indeed, out from under a very powerful and a very sophisticated company. The union's primary bargaining power probably stems from its ability to exploit the Bell System's desire for a good image both in the community and in the halls of government, where much of the company's destiny is decided, rather than from direct economic leverage of such other industrial-type unions as the UAW or USW. Bell System employees are the largest group working for a single private employer in every divisional jurisdiction.

The telephone industry has long been a key source for female employment in the urban (and now the suburban) community. The telephone operator still accounts for 27% of industry employment. Women clerks, stenographers, and office machine operators make up 22% of the work force, and women in commercial operations and in administrative or supervisory positions represent some 7% of industry employment. This ratio of female employment -- totaling 56% of all telephone workers -- has held constant during the five years since 1963.

Average hourly earnings for non-supervisory workers in telephone were \$1.15 in 1948 -- compared to \$1.23 for the total non-farm sector. By 1968, telephone average hourly earnings had risen to \$3.04 -- while the total non-farm average stood at \$2.85. Contributing significantly to the higher rate of advance in telephone wages has been the increasing proportion of telephone craftsmen within the "mix" of non-supervisory employees. Thus, plant craftsmen's average hourly earnings are substantially above the average wage, while telephone operators are below it.

Pressures on the Bell System to expand communications capacity, particularly within and between major urban centers, resulted in a recently announced increase of half a billion dollars in plant construction expenditures -- above the $5.2 billion already projected for 1969 at the beginning of this year.

That plant investment per employee will continue to spiral upward was documented by H.I. Romnes, chairman and chief executive officer of A T& T, in commenting on the boost to $5.7 billion in expenditures for 1969. He indicated that "...fully 75 percent of the facilities that will comprise our interstate network in 1980 remains to be built"* (emphasis supplied). This level of capital expansion will have great implications on the industry's training and manpower needs.

The crisis in telephone manpower stems from the turnover problem (often exacerbated in the very cities where capacity is most strained), as well as from the companies' reluctance to adopt more flexible hiring and training practices earlier on. The problem is complicated by the longer period now required to train technicians. Because of the expanding economy, men with electrical backgrounds can and do find jobs in many other industries beside telephone, so that the companies have fewer applicants with previously required prerequisites.

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* Gene Smith, "A T & T Explores New Financings," The New York Times, September 12, 1969.

The shortfall in planning is very likely to induce a rethinking a of A T& T's management relationship with the operating companies. The tradition in the Bell System has been that A T& T made the policy, and the operating companies developed the practices. Already there is some evidence that the parent intends to take firmer control of planning for the whole Bell structure. The industry's many computer uses alone will require a nationwide compatibility and direction that should carry over to the training of operating personnel. Currently, the separate companies train employees in accordance with Bell System Operating Practices, which are spelled out in voluminous detail for every phase of telephone operations. Substantial discretion is given, however, in the means by which these practices are administered -- as is clear from our review of seniority and upgrading procedures among the companies included in this study.

Telephone non-supervisory occupations can be most readily described within three general groups: plant department workers, including both craft and noncraft; traffic employees, primarily telephone operators; and clerical workers, including, at the upper end, a number of fairly skilled classifications in the commercial and marketing departments.

The following table shows the percentage and major employment category of each of these groups:

Plant Department Workers		37%
Installation and repair craftsmen	13%	
Central office craftsmen	12%	
Line and Cable craftsmen	7%	
Operatives and laborers	5%	
Traffic Department Workers		29%
Long distance operators	17%	
Information service operators	5%	
Miscellaneous service operators	3%	
Service assistants and observers	4%	
Clerical Workers		34%
Accounting	6%	
Plant-inventory, etc.	6%	
Commercial and marketing	5%	
Traffic	4%	
Miscellaneous	3%	
Company representatives (service and commercial)	10%	

Plant Department Workers: This department's employment is divided into three major craft groups:

- Installation and repair of telephone handsets, together with necessary interior wiring and equipment.
- Maintenance and repair of switching equipment in the central office.
- Installation and repair of "outside" transmission apparatus.

The craftsmen in these three categories make up 32% of the nonsupervisory work force (up from 24% in 1950) and they are backed up by another 5% of the employees in noncraft, relatively unskilled service and support jobs. In the plant craft occupations, skill levels are normally ranged into three steps, usually designated as third, second and top craft jobs. The following chart indicates the major plant craft occupations and levels:

	Installation & Repair (approximately 84,000 workers)	Central Office (approximately 77,000 workers)	Line & Cable (approximately 45,000 workers)
Third Step (Entry Level)	Normally no Third Step occupation-Entry level is from frameman, cable splicer's helper or from outside.	Frameman	Cable splicer's helper
Second Step	Installer-repairman or station installer	Toll line repair man or apparatusman (frameman may move directly to Top Grade in some areas)	Lineman
Top Grade	PBX repairman or PBX installer or communications serviceman.	Central office repairman or switchman or test deskman.	Cable splicer

Telephone installers and repairmen, either place individual handsets, together with necessary wiring, inside and to the terminal box, or hook up switchboards required for the multiple telephones in private branch exchanges (PBX). Plug-in components have markedly simplified some tasks of the repairman, who "shoots" trouble on subscriber equipment. Although manual wiring skills are less frequently used now than in the past, diagnosis of circuits and tying-in of stations are now much more complex -- particularly for the PBX installer and repairman.

In installation and repair, there is no third or entry level grade as such. Installers usually have come from other plant departments, having had experience as a frameman or cable splicer's helper. As the labor market has tightened in recent years, however, the operating companies have begun to hire directly into the installer-repairman or station installer classification, particularly when they are able to find applicants with some electrical or electronic background. Movement from entry jobs to the installer-repairman grade depends on available openings, but normally takes no more than a year to eighteen months.

The top craft jobs in the installer group are usually designated PBX repairman or PBX installer. Progression again depends on openings, but usually requires eighteen months to three years after moving up to an installer-repairman's job.

Central office craftsmen, dubbed "inside" plant men, are the next most populous craftsmen group. The oldest form of automatic switching equipment, known as step-by-step apparatus, is repaired and maintained by these workers, and still services slightly less than two fifths of telephones. It makes extensive use of mechanical components, and requires a high degree of mechanical dexterity to maintain. Crossbar switching systems developed in the thirties require repairs that are 5% mechanical and 95% circuit analysis, and extensive schooling (thirteen weeks) for would-be crossbar specialists. This equipment also serves about 40% of all telephones.

Development of the transistor and of semi-conductors has led to the perfection, in 1965, of the electronic switching system (ESS), whose performance is similar to that of a high speed, general purpose computer with a stored program. This electronic switching, which is now being installed, will profoundly affect the skills required of the central office repair group -- eliminating many of the present routine checks and repairs, because of its programmed ability to self-diagnose and work around faulty components -- but requiring a highly sophisticated repairman-technician to handle those break-downs which are "outside" the system's program. The Bell System's goal is to have one-third of its telephones served by ESS by 1975, and eventually to provide for total conversion.

The entry level or third craft job in the central office group is the frameman who runs, connects and disconnects wires that represent individual subscriber lines between cable (or trunk) and central office terminals. In some Bell companies, a second craft category is established within the central office group. In others, there is no second craft as such, and the frameman must either transfer over to installer-repairman or lineman -- or wait his turn for a top craft opening. In either case, he is likely to move within a year to eighteen months after hire.

The principal top craft classification in this group is central office repairman; a number of companies also carry a separate classification for switchman. These jobs are among the most highly skilled in the industry, requiring detailed knowledge and "feel" for maintaining one of the major switching systems; a central office repairman usually stays with the system he has learned for as long as he holds this job title. Movement up to a top craft spot usually requires eighteen months to three years at a second craft job, plus at least some "inside" experience.

The third plant craft occupational group -- line, cable, and conduit craftsmen -- installs and maintains the transformer and transmitting facilities which link the network together. New technology and operating methods have diminished the number of jobs in this "outside" group in the last 15 years. Expansion both of trunk capacity (the new underground coaxial cable from Miami to New York, for example, can carry 32,400 simultaneous calls) and of microwave transmitters (which need no poles or cable) has decreased the volume of line and cable construction necessary to support growth of the network.

The entry job for line and cable occupations is the cable splicer's helper. He works with linemen and cable splicers, performing simple tasks in both new construction and in "shooting trouble" and often acts as the "ground" man for aerial and underground crews. The lineman practices many of the skills popularly associated with telephone work, including climbing poles to string and repair cable and terminal equipment, as well as performing less complex wiring tasks on underground installations. Although many of the mechanical skills of the cable splicer have been simplified as new technology is developed, his job now demands greater knowledge of circuit and transmission theory. Upgrade from helper to lineman normally takes twelve to eighteen months, and from lineman to splicer, eighteen months to three years.

One factor which undoubtedly tends to hold down the turnover among plant craftsmen is the availability of substantial amounts of overtime. Average weekly hours for plant craft employees were 44.8 in 1968 -- and the average week worked has not been below 44 hours since 1962. Taken together, all non-supervisory employees averaged less than 40 hours per week in 1968 -- reflecting mostly split and short work days among telephone operators.

The non-craft plant employees in the operating companies are, by and large, in such unskilled classifications as building service, supplies distribution and warehousing. Movement from such jobs into the craft classifications is limited to those workers who can pass the required qualifying tests for plant entry level jobs. Some of the operating companies are now offering remedial courses, however, through which non-craft employees can prepare for these tests. Employees in this group, nevertheless, are presently a very minor source for new craftsmen.

Traffic Department Workers: This department's intervention is needed in the otherwise automatic process of placing a call. The vast majority of traffic employees are classified as operators, with some 10 to 15% in such higher graded positions as service assistant and service observer.

Over half of all the employees who worked for telephone companies in 1945 were operators. The steady decline in operator jobs (to less than 25%) since then has resulted primarily from the gradual conversion of the telephone system from manual to dial operation, which was virtually completed in 1963. The substantial "shrinking" of the operator work force which accompanied conversion was accomplished almost entirely through pre-planning and non-replacement of separations, and by transfer to clerical jobs; there were few permanent layoffs of operators, although operator employment declined from 290,000 in 1953 to 189,000 in 1963. Since then the number of operators has increased slightly as volume of calls has increased more rapidly than new technology and methods in traffic could be put into operation.

Sixty-eight percent of telephone operators today are assigned to servicing those long distance calls which require human intervention. The volume of long distance calls has more than doubled over the last decade because of the sharp reduction in toll charges, the nearly universal availability of direct distance dialing, and the installation of Automatic Message Accounting, by which the necessary billing information on toll calls is recorded automatically in the central office. Operator worktime per long distance (or toll) call will be reduced by 25-30% as the Traffic Service Position (TSP) system is more widely installed. This automatic switching system is expected to handle 75% of all toll calls by 1975.

Eighteen percent of operator jobs today are tied to information service -- and the proportion and total number are likely to increase, as telephone directories become more cumbersome and the areas covered by local calls expand. The remaining 14% of operators' jobs involve intercept, local assistance, and other types of services -- with the bulk in intercept (which involves "triggered" intervention of an operator when a nonworking or vacant number is dialed). Automatic intercept will be gradually expanded in the next decade, and the total number of jobs will increase slowly, at most.

Promotional opportunities for operators are largely confined to service assistant (an experienced operator who handles "problem" calls and assists in training new operators) and service observer (an experienced operator who monitors the board for adherence to company practices). There are, in some of the operating companies, additional traffic classifications for coach of new operators and for customer instructor on PBX equipment. Upgrade to one of these higher positions, which account for about one out of ten jobs in the traffic department, usually requires from three to five years' service as an operator. Operators may also have the opportunity to transfer to certain clerical classifications, as discussed below.

Clerical Workers: It is in the nature of the telephone business to keep minute records of every phase of telephone operations -- thus requiring large numbers of clerical employees (approximately 165,000 jobs) to compile, distribute and file the data.

The accounting or comptroller's department provides one-fourth of all clerical jobs -- processing subscribers' bills, recording revenues and expenses, preparing financial data for regulatory commissions and running payrolls. Another 25% of clerks are assigned to the plant department, keeping records on the inventory and utilization of telephone "hardware" and on the maintenance of buildings, facilities and motor vehicles. Commercial and marketing departments employ some 18% of clerical workers, compiling records on sales and service operations, customer credit and bill payments, and market surveys on new services and on future growth. Fifteen percent of clerical employees are in traffic, monitoring records on volume of calls and efficiency in handling calls, and plotting needs for additional facilities for the network. The remaining 13% are scattered among other departments.

The variety of clerical job titles among the operating companies runs into the hundreds; grade and salary levels have been established to fit the needs of each company, but reflect also some impact of collective bargaining on job structure. In general, however, there is a fairly common pattern, centered on three grades or levels of clerical titles -- with a sub-grade of unskilled jobs at the bottom (messenger, mail clerk), and a senior grade (or grades) above the top, for employees who have special skills or who are responsible for the work of others (senior statistical clerk, accounting assistant, traffic service advisor).

Upgrading from entry level clerical jobs to the second grade, and from the second grade to the top grade, is geared to available openings. Because the greatest number of jobs is in the entry level category, upgrading normally involves eighteen months to three years for the first move, and three to four years thereafter for the next grade move (depending on demand for the special skills which the clerical worker brings with her or learns on the job). Movement into a senior grade position requires a minimum of eight to ten years' total service.

Clerical employees tend to move up within the department in which they started, although there are occasional opportunities for advancement across departmental lines.

A separate, semi-skilled group of classifications in the commercial department also give upgrading opportunities to clerical workers and telephone operators who can pass a qualifying test. This group of employees is typified by the position of service representative and accounts for about 65,000 jobs. Essentially, the service representative (the title varies but the function doesn't) is the revenue "watchdog" for the company; she handles some 2,000 accounts (usually residential subscribers), reviewing them at least monthly for promptness of payment, as well as answering any questions which the customer may have on his bill.

Entry to the service representative's position comes through transfer from a clerical or an operator's job, or via direct hiring through the employment office. All applicants must pass a simulated situation test, in which they are confronted (on the telephone) with "problem" customers; a passing grade is determined by how well the applicant copes with each problem.

From service representative, upgrading opportunities are available to higher rated jobs involving sales and service contacts with commercial customers (commercial representatives), and, at the next higher level, a combination of consulting and sales contact with major users of telephone equipment (communications representative or special representative). These latter job titles require substantial technical knowledge of telephone facilities, as well as sales ability, and carry rates well above those for top plant jobs in the same location.

Entry level selection in the industry attempted, until very recently, to skim the most "desirable" of the high school graduate group. The screening for "Bell quality" employees involved a minimum of a high school diploma (for all but non-craft plant employees); the furnishing of "reputable" references; a favorable impression on the employment interviewer; and a passing score on the Bell System Qualifying Tests (BSQT).

The combination of tightening labor markets in many metropolitan areas and federal equal employment opportunity pressure pushed the companies toward revised standards, beginning about 1966. Although the Bell System still "prefers" to hire only high school graduates, the companies will hire operators and some clerical employees who have completed the tenth grade -- provided that they pass the Bell System Qualifying Test for female employees (arithmetic and word definition). Previous standards still exist, however, for all new hires into plant craft jobs.

While the Civil Rights Act of 1964 was a prime factor in forcing this review of the screening process, the Equal Employment Opportunity Commission could report only 4.3% Negro employment in communications in 1966. Two-thirds of total Negro employment was in clerical occupations (including telephone operators), and 15% in the service worker category. Since that time, the industry has opened up considerably to minority groups at the lower job levels, but the number of such workers who have moved up into the "system" beyond entry jobs is still painfully small, and the number in management positions is minuscule.

In the advancement of employees to higher rated jobs in the telephone industry, seniority tends to prevail, in the majority of instances, within the non-supervisory groups. The labor agreements are replete with phrases in the promotional clause, however, which protect the company's options: "...taking into account length of service insofar as the conditions of the business and the abilities of the employees permit " (Southwestern Bell); or "... ability and qualifications for the job being equal, seniority shall prevail " (Ohio Bell).

In such cases the burden essentially is on the company-- as a matter of practice -- to prove that the senior employee is not qualified for the opening in question. With only minor reservations, both company and union officials acknowledge that seniority is the general rule, but that the company usually has good grounds when the senior employee is bypassed.

Potential ability vs. ability to perform is the most ticklish issue here; and while potential or the "ability to learn" is usually paramount, it is judged within the framework of a performance evaluation by the employee's supervisor. Criteria for measuring ability to learn have been established. Thus, in the case of highly skilled jobs, successful completion of Basic Electricity and Basic Electronics Training courses is a prerequisite for promotion to top plant jobs -- as well as for specialized schooling in such courses as crossbar switching and PBX repair.

Promotion is almost always on a post and bid basis, but bidding procedures for employee advancement vary substantially from company to company. In one case, job posting and job bidding is handled largely through the union which posts job vacancies on a statewide basis; in another, the union furnishes a list of up to five bidders from the designated promotion area for each plant opening reported to the union and the company selects the successful applicant; while in a third, bidding is on an exchange area (which usually means metropolitan area) basis in the plant department, and on a central office or location basis in the other departments.

The Bell System has a reputation within the business community for painstaking thoroughness in the training which it provides for its employees. Much of this emphasis on training stems directly from the high level of technical competence required in top classifications, particularly in plant. This zeal for training reflects, as well, the intensive compartmentalization of function which is a hallmark of the Bell System; foremen and first level supervisors are given a relatively confined "territory" to administer, and are closely monitored on the "development" of their employees.

The Bell System's commitment to formal training is not only extensive but also expensive. Southwestern Bell officials indicated, for example, that 1 to 2% of Southwestern's 50,000 non-supervisory employees are in school every day of the workweek. Turnover in operators and clerical personnel contributes to this training load, as we have noted -- but upgrading of skills is also a major factor in school enrollment. None of the companies were willing to discuss budget allocations for training -- first, because such data is regarded as confidential, but second, because a comprehensive estimate of training costs necessarily included both formal schooling (which can be priced) and continuing on-the-job training (for which, they stated, it was impossible to derive precise figures).

Some specific instances of Bell's training operations were obtained, however, from interviews with the companies as well as from other sources. Formal training of newly hired operators, for example, varies according to their assignment: toll or long distance operators are given three weeks of schooling; information operators about one week, and intercept operators a few days. On August 29, 1969, when it announced a pilot training program to upgrade the quality of directory assistance (information) in New York City, the New York Telephone Company stated that the extended training would run six or seven weeks and would cost $700 per girl, in contrast to the usual eight days of training at a cost of $150 for each information operator.

Training costs for top plant craftsmen represent a substantial investment on the part of the company in a given employee -- hence the company options in the promotion clause with respect to the ability or qualifications of bidding employees. The basic school for PBX installers and repairmen runs 12 weeks, with successful completion of the Basic Electricity and Basic Electronics courses as prerequisites. A crossbar switchmen goes to school for 13 weeks, and costs the company $4,000 in total training by the time he is fully qualified, according to one union spokeman. The formal training for a service representative in the commercial department runs six to eight weeks, followed by two months or so of intensive observation and coaching.

Schooling is a continous process, even for experienced employees, as new equipment is introduced or a new method of operating is developed. The selection of employees for such additional training sometimes raises problems for both the company and the union; the "old hands" tend to be reluctant to expose themselves to the classroom again, while the younger workers are often eager for the latest in technology. The problems thus created when promotional opportunities come up are readily apparent -- and occasionally strain the rule of thumb on upgrade by seniority.

Union officials also believe that both wage levels and length of progression schedules have a direct bearing on the ability of the telephone companies to attract and to retain qualified plant craftsmen. They feel that while the turnover rate in plant is in the range of 10% nationwide, the "crunch" is most acute in urban labor markets, where telephone company pay rates are least competitive for workers with electrical and electronic skills. The union is therefore pressing for higher wage rates and quicker increases within progressions. (It takes six years to reach maximum pay in the plant craftsmen progressions and five years in the operator progressions, with a higher percentage of the wage increase coming in the last 18 months of the schedule.)

Neither the union nor the operating companies appear to have given much thought to the possibility of speeding upgrading opportunities or providing new types of training to allow for movement out of normal progressions. Thus, while the industry continues to provide a comprehensive training program for its employees, this program has not adapted to the tremendous expansion of facilities in a period of severe skill shortages. There is little indication at this time that the training system is being adjusted to these shortages. If it does not adjust, it is likely that the industry will have to rely on a loosening of the labor market or on a leveling off of service demands to overcome its manpower shortage problem.

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DEPARTMENT AND VARIETY STORES

The surge in use of part time employees in the general merchandising field, the most important personnel change in a changing industry, has come in response both to an inability to attract sufficient career-minded new employees and to certain changes in operating practices. While the industry's white collar nature (approximately 84%) remains unchanged, the number of part time help has substantially increased. For example, from June 1965 to June 1966, the number of employees who worked more than 40 hours a week declined by 32,000, while the number who worked part time (less than 35 hours per week) increased by about 86,000. During this period, part time employment increased for all employees from 34% to 37%. (Included in this 37% are 29% of male employees and 40% of female.)

Since 1966, there have been sharp increases in the numbers of part timers, and the evidence of field surveys suggests that over half of general retailing employees are working only in the peak selling hours. Productivity, therefore, has also increased although there is no way to accurately measure output per employee across an industry with such diverse product lines.

There appears to be a good deal of disagreement about whether this development is in the long-term best interest of the industry. On the one hand, several retailing officials regard the constant turnover and marginal industry loyalty of its new workers as creating an instability in the structure, which will eventually be painfully revealed as attrition creates more and more openings at the middle and upper levels of the hourly rated positions. Too little attention is being paid to grooming a new core staff which can replace the one that now exists, these managers say.

Other retailers say the low wages paid most new retailing employees cause an inherent condition of instability when labor markets are so tight, and that stores would be best advised not to expend great amounts of energy in creating more attractive personnel structures when, in the foreseeable future, a large group of people will be available who are desirous of part time work to supplement their incomes at precisely those few hours a day when customer demand is greatest (mid-day in downtown stores, evenings and weekends in the ever increasing numbers of suburban outlets). Since productivity appears to be substantially increased by employing people for only those times when they are most needed, and since there is not now a vacancy problem which can be solved without radical changes in personnel practices, these officials have encouraged the trend to part time employment. And the direct cost of processing and briefly training these high turnover part timers is less than giving the raises a more stable work force would require.

Regardless of which view will be found most accurate, there can be no doubt that the increased part time worker population has considerably dimmed both management and worker attention to promotion and upgrading issues. Part timers either leave before they are considered for promotion or turn down opportunities for positions with more responsibility. Since ability rather than seniority is the basic criteria for promotion, management can selectively groom and encourage its better full time employees for those positions coming open at the middle and upper levels. Therefore, management does not have to be concerned with training and upgrading those low level employees whom it does not consider to be prime promotion material.

This profile deals with the two major sectors of general merchandising: department stores, which carry general lines of apparel, home furnishings, housewares and other merchandise and normally employ 25 or more people; and variety stores, which sell merchandise in the low price range and are often known as "5 and 10 cent stores." Together these two types of stores account for 80% of the employment in the field, with department stores employing approximately 1,309,000 and variety stores 317,000 workers in 1967.*

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* Not included in this profile unless otherwise noted are the following sub-classifications of SIC 53: Mail Order Houses (excluding those with department store type operations); Merchandising Machine Operators; Direct Selling Establishments; and Miscellaneous General Merchandise Stores (including such operations as country stores and others employing less than 25 persons). The largest of these categories in terms of employment is Mail Order Houses which employed about 119,000 workers in 1967.

In 1963, there were about 62,000 general merchandise stores, of which 4,200 were department stores and 22,400 were variety stores. However, department stores accounted for 68% of the approximately $30 billion sales of the general merchandise group and variety stores accounted for another 15%. Most department stores are large, and those having $1 million or more in sales employ 99% of the workers. In variety stores, five-sixths of the employees work in establishments with over $1 million in annual sales. As would be expected, worker location in the industry generally parallels the location of the population as a whole. Women continue to hold the majority of jobs in the industry, but their percentage to the total has declined from 72% to a current 68%.

In 1967, non-supervisory personnel in the industry totaled 1,501,000 workers, or 92% of the employees. Between 1960 and 1967 non-supervisory employment increased by 29% in all general merchandising establishments. In the same period, department store non-supervisory employment rose 43%, at an average annual rate of 5.2%, while variety stores had a loss in employment of 3.3%. General population growth and increased consumer spending, brought on by the nation's prosperity, have contributed to employment growth in the industry. Companies have taken advantage of this affluence by rapidly expanding their facilities into the suburbs where the money and population are moving and by extending store hours to better accommodate their customers. Another trend making necessary additional personnel in the department store segment of the industry is the boutique concept which attempts to cater to a special type of customer with select merchandise and more personal service.

Counteracting these trends toward employment growth are those toward more efficient operating methods. Stores have simplified and speeded up their systems for sales transactions, through such means as charge plates, shortened sales forms, more efficient cash registers, punch sales tickets and register tapes designed for computer input. Through the increased use of advertising, they have been able to cut the time a shopper spends in the store comparing merchandise before a sale is made. Improvements in packaging include better protection of merchandise, easier handling and storage, and more attractive display. Computerized billing operations and inventory control, and the linking of EDP equipment with communication systems to improve control over customer accounts, sales and inventory data, for stores with many branches, have also increased efficiency and slowed employment growth. All these developments have tended to close the gaps in pricing and in operating practices which once existed among discount houses, general merchandise chains and department stores.

Hourly workers in general merchandising fall into three broad categories: sales, sales support and clerical. About 55% of all workers in department stores are in sales, 25% in clerical and 20% in the supporting activities of stocking, food services, quality control, display, storage, custodial, shipping and receiving, and alterations and repair. Alteration and repair workers account for more than one-quarter of the support group (about 6% of the entire work force) and correspond to craftsmen in other industries.

In the next five years, the number of workers in clerical jobs, especially cashier jobs, is expected to increase to about 28% of the hourly force; and the sales staff will rise slightly, while the sales support percentage will drop slightly as mechanization eliminates certain marginal service jobs. This decrease will be partly offset by increases in food service jobs.

Variety stores have a considerably different mix in the three occupational categories because of the smaller size of individual outlets, the fewer support services required, and a lesser frequency of charge accounts, mailings and other paper activities. Thus, 67% of the variety store hourly employees are involved in direct selling, only 17% in sales support, and 15% in clerical jobs. These latter two groups are expected to increase in percentage, however, as variety stores shift more to the hard goods, services and payment procedures now provided by department stores.

Sales work generally is pay-graded on the basis of the expense of the merchandise and the degree of personal salesmanship required. In the most highly unionized situations, nine or more sales grades have been devised for some major stores, but retailing officials declared this to be artificial structuring due to union pressure, and, in reality, one could find only about four meaningful levels in skills needed to sell in a general line store.

Typical entry level sales jobs involve selling candy, handkerchiefs, small appliances, notions, toys, underwear and all those products where little more than cashier service is required of the salesperson.

The next level involves selling hardware, pets, books, records, handbags and a wide range of ready-to-wear clothing. This second level requires a greater knowledge of the products to be sold and slightly more "salesmanship," or discussion with the customer. From here, sales jobs demand that salespeople be able to demonstrate products and consult with customers about their individual needs, such as in departments selling china, wallpaper, audio-visual equipment, men's hats, maternity clothes and more expensive gifts.

Top level non-commissioned sales jobs go to those who sell high fidelity components, children's coats and suits, corset and bra fitters, travel consultants, and those who sell rug cleaning services, power tools, liquor, and general or lower priced furniture. Movement from one of these levels to another cannot be considered moving up a structured progression ladder, but rather they indicate relative base pay groupings. People can jump from bottom to top levels, can go out of sales completely to non-selling jobs, or can remain at one level permanently, receiving merit increases amounting to the base pay of the higher selling grades. The key areas for sales promotion call more meaningfully for movement into:

- commission selling
- supervision and/or management training
- sales support jobs requiring skills more marketable and better paying than floor selling.

Commissioned salespeople are considered apart from the ordinary sales staff because their base pay, if any, bears no relationship to their actual income, which will be greatest in those stores offering the highest percentage of expensive products and goods requiring extensive personal attention, such as men's suits, women's shoes and high-priced furniture and appliances. In the most completely stocked department stores, the percentage of sales people in commission jobs can run as high as 20%, falling off to around 10% in full line discount stores, and to about 3% in those stores concentrating mainly on unsophisticated soft goods. Commissioned salespeople can make more than $30,000 a year in active departments.

Exceptionally capable people can move into first line supervision although the openings are infrequent. (One supervisor usually oversees between 15 and 20 salespeople.) Movement into these jobs is also restricted because often they are reserved as the entry level for management trainees.

The third avenue for a true upgrade, one seldom traveled but worthy of mention, is into non-selling activities that take on some of the aspects of management, such as complaint and adjustment interviewing, delinquent account collecting, or into any number of clerical positions, which one major store noted was somehow often more prestigious than selling.

Sales support activities are underpinned with service workers and laborers who make up more than 40% of the group and whose movement into what might be called semi-skilled or skilled classifications depend almost entirely on their own initiative and natural leadership qualities. The structuring of support functions appears to relate directly to the size of a given location and its degree of unionization. In the more highly structured situations, support people work in defined departments in the selling areas, in food services, in quality control, display, custodial, shipping and receiving, or in the alterations and repair areas.

In selling areas, an entry-level stock boy can look forward to grade promotions to more responsible types of stocking jobs and commensurate pay increases. However, those higher rated jobs -- such as typewriter repair mechanics, rug estimators, junior pharmacists -- require a measurable increase in the skills needed and go to people with qualifications gained on their own initiative outside work.

Shipping and receiving requires mainly skills which can be learned after some time on the job; and while there is a little upward movement to such jobs as packer or checker, the top pay grades are considerably below those in other support activities. In alterations and repair, there can be little movement beyond low rated jobs to those with higher ratings without substantial outside training or craft instruction. For example, there is no formalized training geared to upgrade a furniture dry cleaner in grade level three to a furniture repairman in grade level nine.

Already, the biggest current problem that most retailers mentioned is one common to most industries: an increasing need for more skilled service workers, people qualified to handle jobs such as display man, tailor, furniture and upholstery repairman or estimator. For these jobs, and many others like them that a full line store requires, the stores claim no capability for training and almost complete reliance on qualified new hires or the employee's initiative in getting the necessary outside training from trade schools.

There is a body of laborer and service workers available to most stores should such a training effort be undertaken. Several officials indicated interest in developing multi-store consortia that would teach the needed skills, but felt that no individual outlet had the resources to sponsor the lengthy instruction required.

Only in the food department does there appear to be an opportunity for a busboy or dishwasher to learn greater skills and move in progression to beverage preparer, head counter server, cook's helper, cook, and finally to assistant steward and head cook -- each job adding a degree of skill and enabling the person to become more qualified for the top-paying job.

Thus, employees with little prior skill, but who wish to rise in merchandising, normally shift toward the selling area if their appearance and ability meet with the favor of supervisors and management.

In practice, the majority of general merchandise stores probably move people among these departments, shifting and shuffling to get the better people for more skilled jobs and giving only informal attention to those working in these areas in unskilled positions.

"Clerical" appears to be something of a misnomer in the industry because there are many jobs involving paper work that don't require the skills normally associated with the clerical field, such as typing and business machine operations. For this reason, perhaps, many stores lump the clerical and sales support people together in a general, non-sales category.

More highly structured stores, again, designate as clericals those people whose jobs largely involve paper handling and have set up structures within departments in which there is a semblance of progression. In the selling area, for instance, beginners might start out sorting mail orders, move up a grade to price change control, and up to the complaint department where advancement depends on the person's ability to handle the public in personal or telephone contacts.

The same kind of progression would be true in the adjustment department, where little skill in typing is required. People in the advertising department appear to be selected at the outset for their ability to learn certain production techniques associated with media presentation and their jobs would not be open to the typical new hire. Those with typing and comptometry skills probably find most advancement potential in the controller's office, where all of the billing is handled. Except for advertising, the top clerical jobs pay about half what top positions in the support departments pay, and are much more accessible to unskilled new hires.

While average earnings in this industry have remained relatively low compared to wages in most other industries, they have gone up considerably in response to rising minimum wage standards of the Fair Labor Standards Act. In 1967, the average hourly salary for non-supervisory department store employees was $2.06. In variety stores, where only 60% of employees are covered by the minimum wage law, hourly wages averaged $1.61. In 1965, prior to the increase in the minimum wage to $1.25 per hour, wages in department stores had averaged $1.75, and in variety stores, $1.31 per hour. By the beginning of 1968, as the minimum wage increased, average hourly earnings had reached $2.19 in department stores and $1.72 in variety stores.

Exact figures on union numerical strength in the industry are unavailable, but union officials, who estimate representation at about 25% of eligible employees, indicate that organization has been facilitated by recent National Labor Relations Board rulings which allow for separate organization of recognizable departments within a store rather than the previously required storewide majority as a bargaining unit. Unions have had difficulty in organizing employees in this industry because of the high percentage of women in the major non-supervisory job categories. Many employees, both men and women, as part timers, use the job as a supplement to their primary source of income. Interrelated with these factors is the extremely high employee turnover in the industry. While detailed figures on employee turnover are not available, industry and union officials interviewed agree that it is a severe problem.

Most metropolitan area stores are unusually vulnerable to the problems created by tight labor markets, basically because they pay less than other employers. High school diplomas have been disregarded widely for beginners' jobs throughout the store, and many big merchandisers even regard a high school diploma as a possible signal of management potential. Lengthened store hours have also created the need for more people and lower standards, and hastened the greater participation of part time workers.

As one personnel officer put it, "We literally fall down on our knees if an experienced sales person comes in for a job," and only in the few stores with strong retail workers' unions or in the still fewer operations in loose labor markets, would the personnel people hesitate to slot experienced outsiders over more senior employees. This same lack of attention to seniority at hiring also applies to promotion, again with the spotty exceptions of organized stores, but even there, officials admit to great freedom in promoting the more capable.

In all of the stores surveyed, this capability was measured formally in six month or yearly reviews of each employee's success on his job, his attitude, enthusiasm, and his potential to handle higher rated positions. Supervisors make written estimates of the employee's progress, and the section leader (or supervisor's supervisor) adds his estimate. In one major store, it was noted that even the buyer can rate the salespeople in those departments for which they are responsible. These ratings are delivered to the personnel department, and ordinarily the employee is given an annual interview where the personnel department adds its own rating of the person's potential. At the time of the interview, the employee usually is given an opportunity to indicate the department or job to which he would like to be promoted. This indicator is a key document to which personnel refers when openings occur, and it is combined with the latest estimates of the employee's ability to provide the basic information for determining job changes.

The initiative for personnel movement is almost entirely in management's hands. Retailers declared unanimously that it was a rare instance when the employee militated for the higher paying or more skilled jobs and that selection of persons for upgrading was performed almost always at the convenience of management. Naturally, they said, through the appraisal and rating structure it would become known which employees were keenest on moving, and this information weighed heavily when openings occured or when the person showed dissatisfaction with his current job.

Although most general merchandise retailers have extensive training efforts aimed at the management and management-intern level, there is very little formal training for the hourly work force. Clerical and sales support people need little preparation to handle entry-level jobs and from there the person's movement depends on how much he is able to learn on the job or on how much initiative he has toward off-hours schooling. As noted above, there is no in-house effort to instruct formally for semi-skilled or skilled jobs.

While accurate statistics are difficult to come by, it appears that the lot of minority group employees within the industry is slowly improving. According to the Equal Employment Opportunity Commission's 1966 survey, Negroes held 7.4% and Spanish surname people 2.3% jobs in the General Merchandise industry. However, 59% of the jobs held by Negroes and 33% of those held by the Spanish surname persons were blue collar, and over 75% of these were in the service or laborer categories. Most large retailers are participating in National Alliance of Businessmen hard core training projects at least in locations which are downtown or otherwise vulnerable to black dissatisfaction. This effort, while valuable, normally does not spill over into suburban areas where the retailing expansion is taking place.

There are some specialized efforts, somewhat unique, which retailers have adopted to increase skill levels and reduce employee shortages. One store provides for time off during the day for all employees to watch a remedial educational television series broadcast by a local station. Courses are run one hour a week and include math, grammar, speed reading, etc. Another store trained a contingent sales force to handle special events so that the regular staff could continue on their jobs when such events took place. Training included lectures on specific sales procedures, discussions of basic selling techniques, and role playing.

One major department store has a junior executive program to upgrade both sales and sales supportive employees. All must be high school graduates. Selection is made on the basis of ability as measured by performance, and on the basis of verbal and math tests. The program combines OJT with class-room training. The OJT is basically an intern program, where the employee is rotated through several departments and usually assists the department manager until he has "learned the ropes" in each department. The classroom sessions are conducted by various department officials, with lessons in basic retailing, math, statistics, and so on. Final placement decisions are made by the trainee and the training director.

There are, no doubt, other isolated examples of such programs. However, most training -- even the OJT variety -- is used to improve the performance of an individual in his present job rather than as a means of providing him with the opportunity for movement into a better position.

Only in the sales area is there any degree of training and this comes immediately upon the person's hire, with varying amounts (usually no more than a total of three man-days) of non-productive instruction in cash register operations, salesmanship, handling of returned merchandise, store protection and inventory and storage matters. Beyond this, the "training" ordinarily is seasonal, with periodic sessions to acquaint sellers with new lines of products, and has little impact on improvement of skills.

The vast increase in self-service merchandising has diminished the need for training sales people to deal effectively with the public. At the same time, however, there is an opposing demand by increasingly affluent shoppers for more personal attention in selling and servicing the more expensive product lines. If this trend continues, it may outstrip the retailers' ability to fill these more demanding positions and will test the efficacy of such heavy reliance on part timers.

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COMMERCIAL BANKING

The banking industry has long provided educational opportunities to its personnel. Today, as the industry struggles to meet a continuing shortage of qualified help, banks are more willing than ever to foot employees' education bills. Education and training has become big business in banking. One survey indicates that 89% of all banks have tuition refund plans. Of this number, 80% offer full tuition refund. The remaining 20% offer varied amounts of reimbursement, all above 50%. Based on figures provided by selected banks, we estimate that in 1966 banks spent over $31 million for education and training, most of the money for tuition reimbursement.

While banks do not usually require employee participation in remediation or enrichment courses, employees are aware that such self-development vastly enhances their chances for upgrading. At the heart of banker education is the American Institute of Banking, the academic arm of the American Bankers Association and the largest private adult education effort of its kind in the world. More than 100,000 bank employees now attend class, study groups, or participate in correspondence courses under the auspices of AIB. The Institute operates through 500 chapters, holding formal classes in 300 cities, and monitoring more than 200 study groups and study teams in small communities throughout the country.

The American Banking Institute's program costs more than $2 million a year to implement. AIB national curriculum offers 29 banking, bank-related and communications courses to all level bank employees. Although all courses are not obtainable in all chapters, AIB provides over 30 textbooks on subjects ranging from effective English to analyzing financial statements.

Institute students may try for a basic, standard or advanced certificate. In addition, the AIB gives credit for equivalent college courses, and some Institute courses are transferable to college. Many college degree candidates supplement their college study with AIB courses.

Another major educational effort is the 71 state association-sponsored banker schools which are conducted for bank officers and other supervisory personnel. Last year, some 17,000 students attended these at a cost of $5.5 million. The industry also is increasing its skills training efforts. Most large banks maintain their own training departments and offer in-house enrichment seminars for intermediate level employees and entry level skills training for clerks, typists, stenographers and keypunch operators. According to a 1964 National Industrial Conference Board study of personnel policies, 59% of all banks had formal training programs, and industry sources claim this percentage has since increased. These programs are either job-skill related, orientation or a combination of both.

The AIB also is beginning to formulate specific skills training programs which will be directed toward smaller banks that cannot afford to maintain their own in-house training. Under this program, clerks, secretaries, managers and technicians will be taught job skills through role and game playing, the use of packaged training materials and participation in daytime forums, seminars and clinics.

Banks also have been leaders in the hard core training effort now underway under auspices of the National Alliance of Businessmen. It appears that central city bank vulnerability to disruption, coupled with worker shortages, has provided the primary impetus for such efforts. But, whatever the motivation, banks either individually or in consortium are continuing and expanding their programs for recruiting and training the disadvantaged at entry level.

The industry's traditional emphasis on providing large amounts of job-related education and training for its employees, which we can expect to see molded to meet any continuing or new manpower problems, is one of three major factors providing the framework for an understanding of the outlook for upgrading and training. The other factors are the rapidly expanding and broadened service capacity which has characterized the industry since the end of World War II and the continued introduction of new technology. The service expansion will result in a continued rise in levels of employment over the next five years, but as in the recent past, the rise will be substantially tempered by technological changes, especially by the increasingly efficient application of EDP.

The employment structure of banks is dictated by the services an institution must provide. Well over half of the industry's employees work in banks which must give their customers a full range of services and thus require a diversity of departments underpinned by viable promotion and training progressions.

Modern-day commercial banks "in addition to the acceptance of deposits, lending and investing, ... provide a multitude of services including the sales of cashier's checks, travelers checks and bank money orders, trust services, underwriting, and the sale of new security issues of state and local governments, the purchase and sale of securities, the sale of foreign exchange and the issuance of commercial letters of credit, the sale and redemption of United States savings bonds and depository services for the federal government."*

All of these activities rest on a bedrock of white collar clerical type workers, who collectively make up 90% of the non-supervisory workforce. Another 7% are service workers, and the small balance perform sales, craft and laboring duties.

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* Edward D. Reed, Commercial Bank Management, (New York: Harper & Row), 1963.

Larger banks, those with assets over $50 million, are almost always departmentally structured, and office workers are trained to advance within these defined sectors of the operation. The following chart illustrates that a preponderant number of the industry's employees work under these conditions:

EMPLOYMENT IN COMMERCIAL BANKS, BY SIZE*
OF BANK, FIRST QUARTER, 1966

Size of Bank (Total Deposits)	Number of Banks		Employment		Employees per bank (Average)
	Number	Percent of Total	Number	Percent of Total	
All Banks	13,800	100	737,200	100	53
Under $10 million	9,700	70	103,200	14	11
$10-$100 million	3,708	27	250,700	34	68
$100 million and over	392	3	383,300	52	97

Sources: Federal Reserve Board; U.S. Department of Commerce, Bureau of the Census; U.S. Department of Labor, Bureau of Labor Statistics.

The industrial and population boom following World War II vastly increased consumer requests for demand deposit accounts and other consumer services, and the concomitant widespread installation of electronic data processing equipment enabled banks to meet these requests without greatly expanding their employment.

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* This table appeared in the following monograph: Andrew F. Brimmer, "Employment Patterns and the Quest for Equal Opportunity in Banking." May 22, 1968.

The following table compares bank service growth to employment growth between 1958 and 1965.

GROWTH RATES
INSURED COMMERCIAL BANKS

	1958	1965	% Increase
No. of Banks	13,124	13,547	3.2%
Gross Revenue	$ 8,500,949,000	$ 16,817,187,000	97.8%
Total Assets	$228,359,687,000	$357,214,409,000	56.4%
Total Deposits	$206,196,015,000	$315,645,533,000	53.0%
No. of Officers	95,308	130,042	36.4%
No. of Non-Supervisory Employees	457,023	569,276	24.5%

The advent of EDP has affected employment by eliminating routine jobs where turnover is highest. But because high employee turnover, which is normal to the industry, has been accompanied by rapid industry growth, employees are not losing their jobs as a result of automation.* Neither has EDP led to general upgrading of skill requirements. Although new, sometimes complex, skills are necessary, the majority of new jobs created by automation don't use skills higher than those present jobs require. In fact, some jobs have been downgraded by as much as three salary levels.

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* Newhouse, Joseph P.,"Technological Change in Banking," The Employment Impact of Technological Change, Appendix Volume II, Technology and the American Economy: (Studies prepared for the National Commission on Technology, Automation, and Economic Progress, February, 1966. 157-171.) This study offers an extensive exposition on the effect of technology in banking.

The trend toward greater use of EDP equipment in order to meet continually growing service demands is expected to push bank employment up by about 20% through 1975, while assets and deposits will each grow by about 50% during this time period. The rapid and extensive growth of electronic data processing in banking has vastly changed the techniques used to record and transfer financial data and information. Primarily adopted as a cost-saving innovation, EDP has given bankers the key to meeting the increased demand for varied and expanded customer services with more speed and less manpower. The majority of banks with more than $50 million in deposits -- representing 5/8's of total insured commercial bank employment -- have already introduced EDP; and The National Commission on Technology predicts that by 1975 nearly all banks will have introduced computers into their operations. The equipment has been applied to processing checks, loans and savings accounts (touch-tone card dialers).

Within the framework of expanding services, computerization and the need for increased staff, banks are experiencing severe labor shortages. There are noticeable scarcities of both male and female teller and clerical applicants, especially in large metropolitan areas. One basic cause of this scarcity, especially but not exclusively concerning female recruitment, has been the emigration of the white middle class to the suburbs. The industry has traditionally drawn from this population for the bulk of its work force; and unlike many industries that have followed the labor source to outlying areas, most large commercial banks are restricted both legally and by service demands to remain near the centers of commerce in the center city.

About one-half of all bank employees work in five states: New York (143,000 employees), California (93,000 employees), Illinois (53,000 employees), Pennsylvania (51,000 employees), and Texas (41,000 employees). The three largest banks in the country employ over 20,000 each: Bank of America, headquartered in San Francisco; First National City Bank and Chase Manhattan Bank, both in New York.

There were, in 1967, more than 13,000 commercial banks in over 30,000 locations. The 563 banks with 6 or more branches had approximately 55% of the total dollar volume of deposits in 1968.

The branching of bank outlets, of course, is very important to many of the women who make up the bulk of the non-supervisory work force (60%) and who seek to work as close to home and family as possible.

Although banks still prefer to hire high school graduates, most large city banks have had to drop this standard, partly because high school graduates are no longer available, and partly because many bank personnel officers now recognize that a high school diploma is no longer an indication of an individual's ability.

All job applicants are tested to assess their clerical aptitude and skill levels. Placement is determined primarily on the basis of the test results and the bank's manpower needs, and secondarily on the applicant's job preference, if any. For those who can type, a skills test will determine not only where she be placed but also in what salary classification. Those who score well on the math parts of the exams are selected for teller or bookkeeper jobs. Others may be placed in one of various jobs from file clerk to keypunch operator, depending on the exigencies of the moment.

Banks lean heavily on the supervisor's evaluation of an employee to determine both the justification for within-grade raises and for promotions out of grade. Seniority and length of service play a very minor role. Department or branch managers appraise an employee's capabilities in formal, periodic performance ratings. Workers usually are evaluated two or three times during their first year of employment and annually thereafter. Supervisors are encouraged to identify promotable people and also those who will need remedial help just to perform adequately where they are. These performance evaluations are forwarded to the personnel department for review and filing in an employee's permanent record.

The multi-service bank's primary departments -- operations, accounting, trusts, loans, data processing, and bookkeeping -- each require specialized training of personnel although each also is staffed with general clerks, typists, stenographers and secretaries whose tasks tend to be similar across departments. An outline of the distinctions in duties and training needs follows:

Operations: People in this department handle deposits and withdrawals and concomitant customer services, such as the sale of savings bonds and travelers checks. All tellers generally are attached to this department, and in the largest banks, tellers often specialize in particular services, such as paying and receiving (commercial tellers). Savings tellers are concerned with receiving savings deposits, computing interest and paying out withdrawals on savings accounts. Note tellers, who may be part of the loan department, accept payment on the various obligations owed by customers, and maintain note and collateral registers.

Bookkeeping Department: This department is charged with the responsibility of keeping an accurate record of all deposits and withdrawals and for preparing a monthly statement for each customer's account. Either within or closely associated with this department is the proofing operation, which involves the sorting and tabulation of checks, and the transit department which oversees the transfer of checks to and from the clearinghouse. To accomplish these tasks requires large numbers of clerks, proofing machine operators, bookkeeping machine operators, bookkeepers and typists.

Accounting Department: This department's duties include the control of bank records, development of financial reports, and the accounting and analysis of the costs of bank operations. Its primary employees are accountants and accounting clerks.

Loan Department: This department is charged with the responsibility for handling bank loans, but its size and structure depend upon the types, size and numbers of loans with which the bank deals. Many large banks have separate loan departments for commercial, agricultural, real estate and installment loans. These departments employ a large number of clerks who keep track of the status of loans; and in some major banks, they have their own tellers who keep track of loan status and manage the collection of loans and payments.

Trust Department: Banks, through their trust departments, settle estates, administer trusts and act as guardians and agents. Such departments need large numbers of clerical and bookkeeping personnel to keep careful check on the status of trusts.

Data Processing: In support of most bank operations is the data processing department, which handles aggregation, tabulation and analysis of financial data for all bank departments. However, many bank officials feel that this department functions more importantly as a profit center by providing such services as billing and payroll runs for various bank clients. Banking is a closely regulated industry, but computer services are normally not subject to such regulations and several bank personnel officials foresee tremendous potential for data processing, both in terms of business and employment.

The importance and organization of all of the above departments depends in large part on bank size, location, employee capabilities, services offered and work load. Smaller banks, located outside major commercial and industrialized urban areas, generally are not required to render many of the services needed in heavy population centers. And the smaller banks generally are not structured departmentally, the work being distributed on the basis of both operational necessity and staff capability. In such institutions, one bank officer, often the president, might be responsible for a wide range of functions, including those involving trusts, local bond issues and loans.

Most large banks have developed a highly structured salary classification system, with jobs rated according to the difficulty and complexity of the tasks involved. Typically, a person will progress three to five grade levels before reaching supervisory status. Not all entry level positions are at the lowest grade. Teller trainees or junior bookkeepers usually start work a few salary grades above file clerks.

Non-supervisory clerks and tellers in the larger, full-service banks are typically upgraded within their own departments. While it was once more common for exceptional members of these groups to become bank officers, most officers nowadays do not "move up through the ranks," but rather are college graduates who enter the industry as management trainees or junior executives. Following are some departmental progressions typical to the industry. Entry level jobs appear in total capitalization:

OPERATIONS DEPARTMENT

TELLER TRAINEE
Teller, Commercial or Savings, Jr.
Teller, Coin or Bulk Currency
Teller, Commercial or Savings, Sr.
Platform Assistant
Teller, Department Head, Head Office
Teller, Department Head, Branch Office
Teller, Department Assistant Manager
Teller, Department Manager

ACCOUNTING DEPARTMENT

INCOME & EXPENSE CLERK
Statement Clerk
Subsidiary Ledger Clerk
General Ledger Clerk
Accrual Clerk
Accountant
Manager

TRUST DEPARTMENT

TRUST SECURITIES CUSTODIAN
Trust File Clerk
Trust Clerk
Trust Bookkeeper
Trust Teller
Trust Manager

LOAN DEPARTMENT

LOAN CLERK
Loan Bookkeeper
Collateral Teller
Loan Teller
Loan Department Manager

EDP DEPARTMENT

EAM EQUIPMENT OPERATOR
Computer Operator, Jr.
Computer Operator, Sr.
Programmer, Trainee
Programmer
Programmer, Sr.
Programmer, Analyst
Programmer, Manager

BOOKKEEPING DEPARTMENT

PROOFING

PROOF MACHINE OPERATOR
Proof Department, Ass't Supervisor
Proof Department, Supervisor
Proof Department, Ass't Manager
Proof Department, Manager

COMMERCIAL BOOKKEEPING

STATEMENT CLERK
Overdraft Clerk
Bookkeeping M/C Operator
Bookkeeping Clerk
Bookkeeper (Ass't Manager)
Manager

The teller classifications represent approximately 20% of the non-supervisory banking work force. Teller trainees are usually high school graduates who have passed preliminary math and verbal aptitude tests at the bank. Their job training most often begins at a teller training center, where all day for two weeks at full pay the trainee is taught teller systems through the use of self-instructional, programmed material. He role plays with his colleagues and supervisors, and learns to count money and strike proof. After this program, the trainee rotates through several training branches, working closely beside a coach, for three months before he is actually assigned to a window of his own. Tellers in the operations department may move eventually from this section to the loan department as a note teller, or to the platform as a platform assistant (or account clerk), but the most common route upward is to operations department supervisor.

Bookkeepers, about 16% of the non-supervisory work force, represent the second largest group in that sector. Most banks do not provide special, off-the-job training for entry level junior bookkeepers, and require beginning employees to give evidence of proficiency in high school business courses. These people generally move up, however, by taking advantage of more formalized training described below.

Typists, stenographers and secretaries perform in all of a bank's major departments. They comprise about 13% of the non-supervisory work force. Typists start work at the lowest salary grade and are upgraded three or four levels as they acquire the skill to perform more complex jobs with more independent judgment.

It is quite easy for a girl to move from the typist progressions to the stenographic progressions, if she is willing to take a stenography course for which the bank will reimburse her. However, since most girls do not continue on the job long enough to take advantage of such an offer, progression from typist to stenographer is an exceptional move.

Pre-skilled secretaries enter the bank's hierarchy at about the same level as teller trainees. After time in the secretarial pool, they may be assigned to one person. Their own upward mobility is determined separately from their bosses'. It is not uncommon for a secretary to be assigned to a more senior officer, should an opening occur; and by the same token, she is not automatically promoted when her boss is.

The personnel function in most banks is highly centralized. Decisions on hiring, firing, promotion and salary administration generally come from the central personnel office. Although branch managers may recruit personnel, the final hiring decision is made by the home office.

Most of the banks in the 27 areas surveyed by the Bureau of Labor Statistics for its 1964 Industry Wage Survey adhered to formal salary rate ranges for specific jobs. Although wage levels have increased about 20% since 1964, the relative differences in salaries remain consistent, with the largest cities paying the highest.

Banking salaries fall below the national mean but it appears that workers are otherwise compensated by more extensive fringe benefits. Almost all banks provide life insurance, medical, pension and profit sharing plans for their employees.

Except in the smaller banks, where employees might be required to work six days a week, workers are infrequently asked to work overtime. Part time help, and full-time employees whose working hours have been adjusted to span varied time periods cover the bank during extended hours.

The following chart indicates the relative salary differentials among bank jobs in New York City in 1965.

JOBS USUALLY PERFORMED BY MEN

Title	Average Weekly Earnings (Men)
Proof Machine Operators	$ 78.00
Tabulating Machine Operators	
Class C	76.50
Class B	89.50
Class A	107.50

JOBS USUALLY PERFORMED BY WOMEN

Title	Average Weekly Earnings (Women)
Bookkeeping Machine Operators	
Class B	$ 73.00
Class A	80.00
File Clerk	
Class C	64.00
Class B	73.00
Class A	82.00
Keypunch Operator	
Class B	71.50
Class A	81.00
Typist	
Class B	69.00
Class A	78.00
Stenographer, General	76.50
Secretary	100.50
Switchboard Operator	
Class B	82.00
Class A	85.50

JOBS USUALLY PERFORMED BY EITHER MALE OF FEMALE PERSONNEL

Title	Sex	Average Weekly Earnings
Note Teller		
Under 5 years service	Male	$ 97.00
" " "	Female	89.00
Over 5 years service	Male	100.50
" " "	Female	95.00
Commercial-Savings Teller		
Under 5 years service	Male	77.50
" " "	Female	74.00
Over 5 years service	Male	97.00
" " "	Female	89.50
Commercial Teller		
Under 5 years service	Male	89.00
" " "	Female	89.50
Over 5 years service	Male	105.50
" " "	Female	98.00
Savings Teller		
Under 5 years service	Male	77.00
" " "	Female	75.00
Over 5 years service	Male	107.50
" " "	Female	92.50

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Industry Wage Survey*, *Banking*, 1965.

Although a department head or branch manager might recommend one of his workers for promotion, it is the central personnel department which, after receiving a job requisition from a department head or branch manager, normally makes the final decision. This decision is based in large part on the performance evaluations that are in a person's file and by the manpower needs of the bank. The personnel department's selection of a person at one bank location to fill a position in another is common, as is the process of hiring-in at positions above normal entry level.

More people, especially men, go on to college rather than to white collar jobs after high school nowadays. The relatively low wages offered high school graduates and the fewer managerial opportunities open to them reflect society's continuing emphasis on the need for more education. Industry has forced a gap between non-supervisory and supervisory job opportunities by preferring to hire college educated people to fill low level management positions.

Banks have adopted several techniques to overcome the labor shortage they face. For one thing, they are attempting to recruit new sources of labor. They are hiring increasing numbers of part time workers, mostly older women who are re-entering the work force after having raised families. They have also begun to recruit people in minority communities and are leading participants in hard core training programs that attempt to reach this more poorly equipped segment of society.

In early 1966, Negroes constituted 4.1% of the total employment in commercial banking. According to one member of the Federal Reserve Board, 32% of the largest banks employed no Negroes in 1966. In addition, a pattern is evident in banking that appears in other white collar industries: 94% of the total employment is white collar (1966) and only 66% of the jobs held by Negroes are in this category.*

The hard core efforts previously described have begun to make a dent in these statistics, at least in the lower level white collar jobs, but there can be little doubt that Negroes are still substantially underrepresented in the industry.

Several banks have begun sponsoring clerical training in high schools in the hopes that students can be persuaded, after graduation, to put specific skills learned to work in their banks. Other banks have established secretarial training centers to upgrade the skills of their own secretaries.

A few of the larger banks are attempting to develop a computerized employee skill bank. The system, as it now operates, contains a skill record for each bank employee, which, according to industry personnel people, gives the bank improved ability to match job openings with current employee capabilities. But while EDP is being used occasionally to provide new employment opportunities, its much more typical use is to automate jobs out of existence.

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* Forty-five percent of the male and 84% of the female jobs held by blacks were white collar.

As the use of automation becomes more widespread in the industry, more traditional lower level jobs will be eliminated. One industry expert predicts that almost all teller and clerical jobs as we know them will be eliminated by the mid-80's. While this view seems a bit extreme, it is true that even today many teller and clerk tasks can be performed by machine. One official went so far as to say that machines can now perform, easily, upwards of 50% of the tasks now performed by commercial tellers; but at this point installation and production costs of machinery still outweigh savings.

Technological change will obviously create some new jobs, but not at the rate old jobs are being eliminated. Thus, the variety and scope of services now offered by banks must continue to expand at the present pace in order to provide for increased employment opportunities. Indications are that new service opportunities will not arise at the same rate in the future as they have in the past.

If this is so, not only will the current labor shortage be wiped out by attrition, but employment will begin to decline in absolute terms by the end of the 1970's. Under such circumstances, the industry should have little difficulty in meeting its manpower needs by using its existing structure to retain employees for the new machine-related occupations that will be created.

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INSURANCE CARRIERS

Insurance carriers include those companies that are engaged in underwriting life, accident and health, and property and liability insurance policies.

Because the bulk of the industry's workers are relatively low paid, young female clericals, for years the industry has experienced rather high employee turnover in certain departments. In the past, the labor supply adequately provided a steady flow of applicants to fill vacant positions caused by girls working for a few years and then leaving to raise a family, and the company's personnel and training departments adjusted to this turnover. However, this traditional labor supply, composed mainly of lower middle class and middle class girls, is beginning to dry up as more and more of these girls go to college or junior college, move out of the cities where the carriers' major offices are located or find work in better paying, more exciting industries.

In 1967, the industry employed approximately 460,000 women, 90% of whom held clerical type jobs. Although the number of women in the industry has increased, their percentage of the total work force has declined slightly since the beginning of the decade.

The following table indicates the breakdown of male and female workers in non-supervisory jobs and the ratio of such workers to the total non-supervisory work force.

	Sales		Non-Sales White Collar		Non-Sales Blue Collar		Total	
	Male	Female	Male	Female	Male	Female	Male	Female
Number	160,000	5,000	64,000	410,000	22,000	1,000	246,000	416,000
% of total non-supervisory work force	24%	1%	10%	63%	3%	--	37%	63%

The basic response of insurance carriers to their labor problems has been to cut back on the need for clerical staff requirements by the installation and increasingly efficient use of EDP equipment. This equipment has not only enabled the industry to cut down the costs incident to a large, unstable work force, but at the same time, allowed it to increase its services without a corresponding increase in required staff. There is every indication that this trend will continue, at least during the next decade.

Concomitant to the elimination of many routine clerical jobs is a shift in demand to the more highly skilled personnel associated with an EDP operation. Thus, while the bulk of employees in most insurance companies are now clustered in the lower salary classifications, several personnel directors express the opinion that within twenty years there will be a definite shift in jobs to the middle skill levels.

The impact of technological change has done much to hold down employment levels during a period when insurance in force has increased tremendously. Insurance carriers were among the first business firms to use electronic computers, beginning in 1954. By 1963, the carriers that account for 80% of the employment already had computers, another 5% had ordered them or were using computer service bureaus. Today, computers handle most volume insurance operations: premium billing, commission accounting and related record keeping. The trend now is toward the consolidation of applications into one record-keeping flow. About 1/3 of the larger companies already use this type of records system. Another trend is the use of optical readers to reduce the amount of manual keypunching. Data transmission from field offices by phone and telegraph is reducing files and record keeping, and speeding service and collection of premiums.

One major gauge of productivity of the work force in this industry is the amount of insurance in force. The table below illustrates, for the life insurance portion of the industry, the increase in output per man hour as measured by percent of increase of production workers and insurance in force.

	Life Insurance Production Workers			Life Insurance in Force		
1964	283.7	thous.		797	billion	
1965	282.9	"	(-0.3%)	900	"	(+12.9%)
1966	282.9	"	(-)	984	"	(+ 9.3%)
1967	289.2	"	(+2.2%)	1,097	"	(+ 9.6%)

The production work force increased 1.9% over the four-year period, while life insurance in force increased by 35.4% during the same years. In the property and liability sector, while total premiums increased 80% from 1957 to 1967, overall employment in the industry increased only 23%. As in most white collar industries, unions have made little headway. Establishments with union agreements covering their non-supervisory employees account for less than 5% of the industry's office employment.

Insurance sales and employment rose rapidly during the post World War II period due mainly to "rising population, growth of personal income and increasing complexity of legal and economic relationships which have contributed to an increasing demand for insurance. The increasing numbers of families and higher family incomes have generated a demand for personal insurance against risks of death and disability. Spread of home and automobile ownership and financing, along with many other factors, have stimulated a rise in the volume of property insurance."* Employment in insurance carrier establishments increased by about 16% during the period 1958 to 1965 and is expected to continue at a somewhat slower growth rate of about 1% per year through 1975.

In 1967 there were approximately 4800 insurance companies in the United States employing 945,000 persons. Of these, about 35% were life insurance companies and the remainder were in the property-liability classification.** A very small proportion of these two types of carriers sell both life and property-liability policies, while many in both groups sell accident and health insurance.*

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* U.S. Bureau of Labor Statistics, Impact of Office Automation in the Insurance Industry (Washington, D.C.: U.S. Government Printing Office, Bulletin #1468, 1964).

** Property insurance provides for the indemnification of policy holders for property described in the policy, if the property is damaged or destroyed. The largest component of property insurance is fire insurance. Casualty or liability insurance primarily covers losses caused by injuries to persons and legal liability imposed upon insureds for such injury or for damage to the property of others.

Property and liability companies employed about 378,000 persons in 1967 and life insurance companies employed 576,000 persons. Employment is concentrated in the largest companies. For example, the 50 largest life insurers employ more than 75% of the people in this segment of the industry and hold more than 75% of the life insurance in force. Although the northeastern part of the country accounts for only 11% of the firms in the industry, these companies employ more than 50% of the industry's work force, with the major concentrations located in the cities of Hartford, New York and Newark.

Non-supervisory workers represent approximately 71% of the work force for all carriers but this level varies somewhat with the type of insurance handled:

Type of Carrier	% of Non-Supervisory Workers
Life Insurance	59%
Accident & Health	85%
Property & Liability	85%

Based on a survey of companies employing about 790,000 people, Negroes account for about 3.3% of the workers in the insurance industry. Although 97% of the industry is classified as white collar, only 82% of the Negroes hold white collar jobs; about two-thirds of those are in clerical positions. Of the remaining 18% in the blue collar category, almost all are in service jobs. Spanish surnamed employees account for only 1.5% of the workers in insurance, and all but a fraction hold white collar jobs.

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* It should be noted that state regulations concerning the type of insurance a single company can sell have been greatly relaxed in the past twenty to twenty-five years. Under present regulations, normally a company can sell all types of non-life insurance and can affiliate with a life carrier to provide a complete line. The liberalization of these regulations has resulted in fundamental changes in the industry's organization, as companies have consolidated, merged and diversified their activities.

In the companies that account for about 80% of insurance employees, weekly work schedules of 37 1/2 hours or less are the rule. EDP installations have created the need for some shift workers. About 55% of the companies with EDP units had shift work, but only 1.5% of the office workers were employed on late shifts in 1966. Console and peripheral equipment operators, and sometimes keypunch operators, work on evening or night shifts, especially in large companies.

In 1967, the average weekly salary of non-supervisory workers in all insurance carriers was $103, excluding non-office salesmen. Earnings for insurance employees, especially clerks, are generally highest in western metropolitan areas, lowest in southern cities. According to the latest Industry Wage Survey, 70% of the females in life insurance companies earned less than $80 a week. Another 25% earned between $80 and $100. Approximately 83% of the men in the survey earned over $100 a week. The following table indicates the percentage of employees by salary range category in that survey. While salaries have increased since the survey there is no indication that ratios have changed:

Mean Wage	Percentage Men	Percentage Women
\$ 60 - \$ 80	9%	70%
\$ 80 - \$100	8%	25%
\$100 - \$120	17%	3%
\$120 - \$140	13%	1%
\$140 - \$160	16%	1%
\$160 - \$180	20%	--
\$180 - \$200	9%	--
Over \$200	8%	--

Most major companies have a hiring office through which they process all applicants for jobs. Prospective employees are recruited off-the-street, through employee recommendations, the State Employment Service and private employment agencies. Although a high school diploma is preferred for most entry level clerical jobs, tight labor markets have forced many companies to reduce this standard. All applicants are given a series of aptitude tests to determine their math and verbal reasoning abilities. Those who can type or take steno are given a skills test to determine their level of proficiency. Placement is made by an interviewer on the basis of the test scores, the interview, and, most particularly, on the company's need.

Progression through the first two or three salary grades is generally automatic and is awarded on the basis on longevity. However, once beyond this point, ability is weighed more heavily and seniority is used as a determinant for advancement only when the ability of two employees is approximately equal. A personnel director of one major carrier said that in the past seniority was given rather heavy weight further up the salary scale but that this was changed because "too many unqualified people were being promoted and it also encouraged a lack of initiative among employees."

Ability is evaluated through annual formal performance reviews executed by the employee's immediate supervisor, approved by the department head and passed on to the personnel department for action and filing. These reviews serve the dual purpose of providing the basis for merit salary increases (those within salary grades) and for possible future promotion.

The supervisor, generally the division manager, has the responsibility for filling all vacant slots other than those at entry level. There is normally no formal posting as is found in many other industries. The instructions in one insurance carrier's personnel manual are fairly typical of the procedures to be followed in filling a position:

> "Although the best qualified person will often be found right in the Section all candidates within the Division are considered for a vacant position. Where no well-qualified candidate is available in the Division, the Division Manager should contact the Department of Personnel representative to determine if qualified candidates are available in in other Divisions of the Department. If no qualified candidates are available in the whole Department, the Personnel Division should be contacted for its assistance in finding someone outside the Department."

In actual practice the upgrading process is much less formal than outlined in company personnel manuals. Often an individual hears through the grapevine of an opening in another department, or he may wish to transfer to another department for personal or career reasons. In such situations, he or she may approach the personnel department or contact the hiring supervisor directly to apply for the job. A decision will then be made by the personnel department and the hiring supervisor on the basis of the evaluations on file, consultation with the employee's supervisor and general company needs.

Most large insurance companies have developed a rather formal salary classification plan in which occupations are grouped according to the compexity of the tasks being performed. For example, one large life insurance company, whose salary classification plan has 21 steps, provides the following skills distribution:

Levels	Salary Range	Types of Jobs
Levels 1-4	$ 4,600 - $6,500	Filing, typing, steno, assembly, coding
Levels 5-12	$ 6,850 - $14,000	First line supervisors personnel interviewers senior clerical workers underwriters claims examiners console operators actuaries
Levels 13-21	$15,500 - $28,000	Managerial, professional (doctors, lawyers, sr. actuaries & programmers, officers)

In this particular company 50% of all home office employees are classified in grades 1 through 4. This is not an atypical situation in the industry.

"The basic operations of an insurance company are (1) underwriting acceptable risks based on the overall assumption of a moderate amount of liability upon each of a large number of risks allowing for the operation of the law of large numbers (2) setting up of reserves out of premiums collected and in the course of being collected (3) investment of these reserves and capital funds and (4) settling claims."* Although there are differences between life and property, and liability insurance carriers, many of the basic processes are the same in both operations. Both have sales forces which develop new business and renew old policies; underwriting operations which assess the risks, approve the policy and set the proper rates; actuarial staffs which provide data on premiums, reserves, vital statistics and other statistics; investment departments which make profitable use of the reserves; and large clerical or record keeping staffs which process the voluminous paperwork which has been basic to the business. The major functional differences between life and non-life carriers lie in the treatment of the claims, actuarial and underwriting functions. The actuarial work involved in setting rates for the possibility of a hurricane is far more complex than determining the age at which a person with particular characteristics might die. Similarly, the underwriter in property and liability must be careful to spread the risks his company undertakes to make sure that a single catastrophe does not hit the company too hard. The major difference in the treatment of claims arises because the amount and the situations for payment in life insurance are set at the time the policy is sold, while property-liability carriers compensate only for the actual loss incurred, an amount which is often a matter of some dispute. Thus the latter type carrier must maintain a considerably larger staff.

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* The Commission on Money & Credit, Property and Casualty Insurance Companies, Their Role as Financial Intermediaries (Englewood Cliffs, N.J.: Prentice Hall, 1962).

The sales operation is most often contracted out to independent agents or brokers who work in or are owners of an agency. The general agent and the people who work for him are not employees of the company whose insurance they sell and their remuneration is based on commissions. A second rather uncommon method of selling is by a direct writer. This method, most common in automobile insurance, involves the selling of policies through salaried employees or agents who represent the insurance carrier exclusively. Life insurance carriers have a third form of sales organization called "branch manager." The branch manager is an employee of the carrier and heads a locally based agency-type operation paid for by the carrier, to whom he is directly responsible.

The sales department, through whatever method may be employed for the production of new business, forwards the policies written to the underwriting department, whose major job is to separate the good risks from the bad and to set the proper rate depending on available statistical information. For life insurance companies this is a relatively simple task involving the review of the prospective policy holders' vital statistics and the medical information provided by the company's medical staff. While group life policies are somewhat more complex, they do not come near to the complexity of property and liability carriers, which necessitates the proper spreading of risks on the basis of a wide variety of factors (geographical, economic, and social).

Once the policy has been approved and the rates set, the policy is given over to the records keeping department which is staffed by large numbers of clerical workers whose major function is to keep orderly records of all the policies the company has written and to be able to retrieve the proper information when it is called for by another department for processing. For the most part, the records keeping department is staffed by file clerks and typists who, under supervision, perform these duties.

The actuarial department services the policies by examining the experience of claims and determining actuarial bases for premium rates, dividends, reserves and nonforfeiture benefits. In addition, the department conducts mortality, statistical, underwriting or expense allocation studies. This department is composed of persons who do basic clerical jobs such as filing, information assembly and typing; those who perform repetitive and routine mathematical calculations (dividend-input clerks); and those who perform highly complex actuarial studies in the development of probability tables or the creation of new lines of insurance.

The accounting department is responsible for billing policy holders, receiving and accounting for premium payments and other income, and dispersing payments on claims against the company.

In addition, the people in this department prepare the many detailed financial reports which are necessary for tax purposes and for review by state regulatory bodies. Occupations in this department range from file clerks through bookkeeping jobs such as premium-ledger card clerks and bookkeeping machine operators -- involved in billing and posting operations -- to junior and senior accountants who prepare financial reports as necessary.

The claims department is responsible for handling all claims against the policies the company writes. In the life insurance field this involves determination that an individual is deceased and that payment can be made in accordance with the terms of the policy. For property-liability carriers this process is complicated by the fact that claims are dependent upon the extent of the damage incurred and that this value must be settled upon by all parties or must be decided upon by a judge in a court of law. In such companies the claims examiner often must have expertise in such areas as medicine, engineering, law, weather or other issues which might have some effect on the final disposition of a claim.

In support of all these units is the data processing operation -- involving only 5% of the work force -- which provides analysis of actuarial, statistical and financial information for all parts of the organization. Jobs in this department range from keypunch operator through electronic automatic machine operator to console operator and programmer.

While the above presents a general functional summary of the major company departments, typical progresssions in the industry are difficult to outline because there is a great deal of movement between departments, particularly in the clerical occupations. Furthermore, often additional education either in the form of company-provided enrichment courses or training from outside sources, is necessary for advancement; and there is also a measure of hiring-in, particularly in specialties such as accountant and statistician. Despite such problems, some very generalized departmental progressions are outlined below. Entry points are in total capitalization:

Underwriting

UNDERWRITING TRAINEE
Underwriter C
Underwriter B
Underwriter A*
Departmental Supervisor

Claims Department

CLAIMS EXAMINER TRAINEE
Jr. Claims Examiner
Claims Examiner
Departmental Supervisor

Accounting Department

ACCOUNTING CLERK B
Accounting Clerk A
Bookkeeper*
Accountant*
Departmental Supervisor

Actuarial Department

DOCUMENT ASSEMBLER
ACTUARIAL CLERK
Class B Actuary*
Class A Actuary*
Departmental Supervisor

Records Department

FILE CLERK C
File Clerk B
File Clerk A*
Departmental Supervisor

Data Processing

EAM EQUIPMENT OPERATOR
Card-Tape Converter Operator
Console Operator*
Programmer*
Departmental Supervisor

* May act as first line supervisor.

All new employees are given a one or two day formal orientation program which familiarizes the individual with the company: what it does and what his particular department does. Most initial skills training for clerical positions is done on the job at the direction of the first line supervisor. Recent efforts by the industry to recruit and train the "hard core" has resulted in the introduction of much more formalized entry level training programs. The apparent success of these efforts is leading some companies to look into the possibilities of such formal training programs for all new job holders as a device to cut down turnover rates. The companies generally offer remedial courses for those persons, who in the opinion of the supervisor, need some additional work in mathematics, spelling or typing. These courses are taught on the company's time by the training department. They are also open to persons in lower skill jobs who wish to improve their chances of promotion. Upgrading skills training for clericals is actually conducted on the job, but several senior clerical occupations -- such as correspondence clerk -- require from 15 to 30 hours of formal classroom training, taught by company trainers.

Training for the underwriting and claims departments is basically on-the-job. However, trainees and junior operatives in these departments are encouraged to take courses on their own time at outside training institutions (such as the College of Insurance, the Insurance Institute, and local 4-year or Jr. colleges) for which the company will provide total reimbursement. Although such courses are not mandatory it is understood that an individual's promotional opportunity is enhanced and quickened if he undertakes such training.

People in the data processing division receive a great deal of training. Keypunch operators are trained from scratch and usually spend two or three hours a day in a classroom for an average of forty hours. Console operators and programmers are trained on the job but get supportive training in classrooms conducted by both the company's training department and equipment manufacturers.

Throughout all departments much use is made of programmed learning courses which are used to enrich the background of people in all occupations and to begin to prepare them for the next step up.

Even with the developments in EDP technology, the industry still faces the problem of having a large number of clerical jobs in which turnover continues unabated. Companies, therefore, are adopting two other approaches to overcome employee shortages. One is to follow the work force to the suburbs, in effect, by placing certain centralized functions (such as billing, EDP and some record storage) in suburban locations. The second effort attempts to tap different work supply sources, such as underqualified minority group women and, occasionally, men. Because even among blacks and Spanish heritage workers labor supplies are relatively tight, the industry has turned increasingly to "hard core" entry level training efforts to overcome skill deficiencies.

Thus, the industry is encountering a situation where, although there is a trend toward relatively fewer lower skill jobs available, it is being outstripped by a drying up of sources traditionally used to fill these jobs, and the workers who are available require substantially increased training to do them. Once this latter group are trained for these lower level jobs, it is likely their lack of education will make it more difficult to move into the increasing number of higher rated jobs.

Personnel and training directors express confidence that "under normal circumstances" they would have little difficulty in training workers for the more complex jobs which the industry anticipates. However they are concerned that the poorer backgrounds of many present recruits will create substantial difficulties both for the trainers and the trainees, as such skills upgrading efforts become more prevalent.

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HOTELS AND MOTELS

This industry, which includes those commercial establishments engaged primarily in providing lodging or lodging and meals to the general public, provides an important example of a relatively rare phenomenon -- a recently negotiated collective bargaining agreement with a clause requiring the "training of employees for promotion and advancement." This language appears in the contract between the New York City Hotel Trades Council -- a coalition of unions dealing with hotels -- and the New York City Hotel Association. The Agreement further requires the employer to "contribute to the Hotel Trades Council and Hotel Industry Training Fund the sum of one dollar per month for each employee on the employer's payroll ... which shall be utilized by the Fund to carry out the training program." The occupations to be trained for and the methods of training are to be decided upon by a joint labor-management committee. As of this writing, no actual training has begun, and the ultimate effect of this approach cannot be predicted. There is no doubt that it does have great potential as a significant breakthrough in the area of labor-management interest and cooperation on the subject of training and upgrading outside of the traditional craft occupations.

The conception for the Agreement grew out of several years of labor-management cooperation in developing and operating pilot programs, funded under the Manpower Development Training Act, which were designed to upgrade unskilled employees (kitchen helpers and chambermaids) to more skilled positions as night auditors or cooks.

The New York City program is exceptional within industry generally and within the hotel industry in particular. For the most part, training for workers in the hotel industry lacks formality and structure. As one source puts it:

> "Characteristically in hotels and restaurants training is informal, haphazard and unsystematic. Charitably, it could be called coaching, with the employee thrown into the job under fire from the moment hired. The supervisor then gives pointers, corrects and demands until the employee performs to the supervisor's standards. Chain organizations usually have traveling chefs, salad makers, bakers, and dining room hostesses who move from unit to unit acting as trainers...Classroom instruction is rare, except in a few companies that have training programs for management trainees."*

A few skilled jobs in the industry do require relatively long periods of planned training. The jobs of chef and baker, for example, cannot be learned in a short period of time. In the past, the hotel industry has relied primarily on Europe, where long formal apprentice programs are used, to supply the skilled people for their kitchens. This labor source is drying up; and with relatively few exceptions, American hotels and restaurants have not been able to establish such formalized training. Instead, the industry has relied on private vocational schools to provide trained staff, and has simplified and standardized operations so that relatively less skilled people can do the job. For example, one executive in the New York City area said that some thought had been given to centralized commissaries for several hotels (similar to the system used to supply food to the airlines).

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* Donald E. Lundberg and James P. Aramatas, The Management of People in Hotels, Restaurants and Clubs (Dubuque, Iowa: Wm. Brown and Co., 1964).

The few schools that specialize in training for this industry are generally on the college and junior college level and concerned with preparing students for the management level or the skilled food service occupations.

The generally haphazard approach to training and upgrading in this industry is at least partially explained by its general characteristics and by the nature of its labor force.

The scale of individual operating units is relatively small. In 1963, the average number of employees for hotels was 19, for motels, 4 and for motor hotels, 20. Of the approximately 65,000 operating firms employing approximately 630,000 people, 20,000 had no annual payroll and fell into the sole proprietorship "Ma and Pa" type establishment. Of the remaining 44,000, approximately 26,000 had less than four persons on the payroll. Thus 70% of establishments have little potential for employee upgrading and our analysis necessarily has focused on the larger operating units. It is such larger units which contain the bulk of the industry's employment and reap the lion's share of the receipts. In 1963, for example, while hotels and motels with employment of over 20 people represented only 5% of the industry's total establishments, they employed 73% of the paid employees.

For the most part, the establishments and employment are relatively evenly spread throughout the country with a slightly higher percentage in the South and Northeast. Approximately 75% of those employed work in metropolitan areas.

Area	Establishments	Employment
Northeast	24%	24%
South	32%	33%
North Central	22%	22%
West	22%	21%

Labor intensity is not easily measured in this industry. There is a wide variation in degree of labor intensiveness between the hotel and motel part of the industry. In hotels, labor costs constitute about 38% of the gross income. In motels, labor costs are considerably less, ranging from 12% in the smaller operations where part of the work is done by owner-operators to around 22% in the large motels that have food services and bars.

Employment has grown about 23% during the period between 1958 and 1965 and is expected to continue at about the same rate through 1975. This growth can be traced to increased travel associated with higher business levels, greater disposable income among a larger percentage of the labor force and more leisure time. Although exact figures currently are not available, industry sources confirm that there is a trend toward consolidation of resources and larger establishments in both the hotel and motel segments of the industry. In terms of numbers of establishments, the hotel category had an absolute decline of about 20% between 1958 and 1963, which has been balanced by an increase of like magnitude in the motel category; but more recent figures are not available. In 1967 approximately 70% of the work force was employed by hotels and the rest by motels.*

Unionization seems mostly dependent on geographical location. Employees in metropolitan hotels outside the South are almost completely organized. For example, in establishments in Chicago, Detroit, New York and St. Louis more than 90% of the non-clerical employees work in unionized establishments, while the figure drops to less than 20% in such cities as New Orleans, Atlanta and Memphis. In general, the unions in this industry do not exert the same control over the conditions of employment as do those in such industries as steel, auto or apparel.

The industry includes a high percentage of women -- 49% -- and a high percentage of minority group employees --

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* In 1963 the Bureau of the Census developed the concept of Motor Hotels to cover those establishments offering all the services of a hotel but with parking facilities. This difference is nil for practical purposes since most metropolitan hotels now offer free parking to their guests. But it does tend to confuse the available statistics since motor hotels are generally included with motels rather than hotels.

39% -- in its work force. According to a report by the U. S. Equal Employment Opportunity Commission, the 1966 ethnic breakdown of this industry based on a sample of 162,926 employees (approximately 25% of the industry's work force) was as follows:

Orientals	2.8%
American Indians	.4%
Spanish Surname	10.3%
Negro	25.3%
White & Other	61.0%

Of the total minority group members employed, the overwhelming majority are in low skilled jobs:

	Minority Group	Total Industry
White Collar	4.6%	20.3%
Craftsmen	2.5%	4.5%
Operatives	5.1%	4.5%
Laborer	8.0%	5.2%
Service Workers	79.8%	65.4%

Thus, while there is a large proportion of minority group people in the hotel industry, they are generally concentrated in the dead-end departments which are described below, and their opportunity for advancement is limited. Hotels have been slow to get involved in the hard core training effort. The one corporation contacted during the study that has had a hard core effort is concerned about how to upgrade these employees but as yet has been unable to design an acceptable program.

Five basic categories of production workers accounting for 93% of the industry's work force can be identified in the industry's wage hierarchy.* One group is the low skilled, low paid, untipped employees who account for 50% to 60% of the work force and include chambermaids, kitchen helpers, housemen, and other back-house workers, whose pay rates average about $1.50 per hour. A second group is skilled and semi-skilled workers, such as bartenders, cooks and pantrymen who account for 10% of the industry and who -- with the exception of bartenders -- do not receive tips, but whose wages are higher than those in group one. The tipped classifications, about 20% of the non-supervisory work force, include such people as doormen, bellmen, waiters and waitresses. They derive a large part of their real income from gratuities. In this category it is not the contract wage that is of primary importance, but the amount of tips that can be earned. A fourth category is office workers, both in the front office and administration divisions, who account for about 15% of the non-supervisory work force. They do not generally receive gratuities and their wages are comparable to white collar workers in other industries. The final category, representing about 5% of employment, are the maintenance craft workers who are generally organized, well paid and receive no gratuities.

These five categories of workers fit into six major departments within a hotel or motel. Although the occupational mix of any single operation will vary, depending on size, quality of services and price range, these six departments can be identified in most establishments of reasonable size:

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* This percentage figure excludes owner-operated establishments run without a payroll.

I. ADMINISTRATION: Represents approximately 4% of the work force -- responsible for overhead and general management operations.

II. FRONT OFFICE: Represents approximately 10% of the work force -- responsible for the reservation, registration, billing and information services for guests.

III. SERVICE: Represents approximately 29% of the work force -- responsible for receiving guests, baggage handling and other similar services.

IV. HOUSEKEEPING: Represents approximately 27% of the work force -- responsible for cleaning rooms and public areas.

V. FOOD SERVICES: Represents approximately 35% of the work force (equally distributed between kitchen and dining room help) -- responsible for the restaurant operations.

VI. MAINTENANCE AND EQUIPMENT OPERATION: Represents approximately 6% of the work force -- responsible for repair and maintenance of all plant facilities.

The occupational structure of the industry rests upon a broad base of unskilled manual labor and semi-skilled service jobs. Many of the major occupational classifications, such as chambermaid, porter, or bellman, provide little opportunity for advancement. Within each department exists some hierarchy of skills and pay, but many of these jobs can be characterized as dead end. Below are some generalized examples of occupational progressions within the departments:

FRONT OFFICE

KEY CLERK
Mail and Information Clerk
Front Office Clerk
Assistant Front Office Manager
Front Office Manager*

SERVICE

PORTER
Elevator Operator
Bellman or Doorman
Bell Captain
Chief Bellman
Superintendent of Service*

HOUSEKEEPING

CHAMBERMAID OR PORTER
Inspectress
Head Porter or Floor Housekeeper
Assistant Executive Housekeeper
Executive Housekeeper*

FOOD SERVICE

Kitchen	Dining Room
DISHWASHER	BUS BOY
Kitchen Helper	Room Service Waiter
Cook's Helper	Head Waiter
Cook or Baker	Restaurant Manager or Banquet Manager*
Chef*	

* Indicates management positions

An individual normally enters the industry through one of the entry level jobs listed above in total capitalization. Recruiting for such follows no industry-wide pattern. Individual hotels use whatever methods each has found successful in the past. Thus, clerical help is secured either through public or private employment agencies or newspaper advertising. For such unskilled kitchen positions as dishwasher and kitchen helper, the "back door hire" is not uncommon. The interview serves as the most important initial selection device and, with the exception of front office occupations, there is practically no aptitude or occupational testing.

Once a person enters the industry, progression may be either internal or through hiring-in. While, philosophically, hotels are committed to promotion from within, in actuality this is not necessarily practiced. One basic reason for this is that seniority has no formal place in the selection of an individual for a better position, and most collective bargaining agreements do not even mention it in relation to the promotion process.

Intra-industry manpower stealing and hiring-in above the entry level is an accepted part of the industry's manpower operations and is in fact one method of upgrading. Particularly in the gratuity occupations, employees seek to gravitate toward those hotels that cater to clientele who pay the best tips. In addition, employees who feel they are locked into their present jobs often apply to other hotels for jobs in the next highest rating. For example, a bus boy at one hotel will apply for a waiter's job in another. To some extent, therefore, this system serves to increase advancement potential in the industry. Recruitment for occupations which require some experience -- such as waiter, carpenter, bartender and others -- is generally through the union in highly organized areas, or by raiding or employee recommendation where the union is not strong or cannot meet the demand.

When hotels promote from within, most promote within departmental lines. The standard selection device for promotion is the supervisor's evaluation. In many hotels this is not a formal process. The personnel director will let it be known that a job is opening and will ask department heads for recommendations. There are efforts being made by several large hotels to break down the tradition of promoting within departmental lines, which should provide more advancement opportunity to people in dead-end departments.

Two departments, service and housekeeping, currently offer almost no advancement opportunities. A person who begins working in the housekeeping department will generally stay in that department for as long as she is employed by the hotel. The first and usually only step up from this entry level position is to floor housekeeper. However, once people are promoted to this higher position their occupational advancement stops and they remain in the floor housekeeper job for many years, blocking the advancement of all employees in that department. Beyond floor housekeeper, hotels usually look to their management training programs to fill the executive housekeeping positions.

In the service department, the advancement to bellman is generally assured; but beyond this, progression is once again blocked by the fact that there is usually one, or at the most, two chief bellmen. But blockage in this department is not critical since many bellmen prefer the opportunity to earn gratuities and this opportunity is reduced if they move to a supervisory position.

The two departments which offer a greater potential for promotion are food service and front office. The front office department is composed of jobs that form a natural progression for occupational advancement. People begin as key clerks and can, if capable, reasonably expect to move up through the progression -- and perhaps enter hotel management. In the food service department, kitchen helpers, if they can get through the first few months of cleaning and scrubbing, are reasonably assured of moving to a higher skill position if they are capable of acquiring such skills. Bus boys similarly can reasonably hope to be promoted to waiter.

At this time, hotel officials feel that these two departments -- food service and the front office -- will be areas which may require them to initiate formalized training programs. The shortage of skilled cooks, chefs and bakers is reaching a critical level in the industry. The need for front office personnel, although not nearly as desperate as the need for food service people, is becoming an area of concern.

Technological change is not expected to affect employment significantly within the near future in this industry since the personal nature of many of the services performed do not lend themselves to mechanization. However, there has been some use of mechanical aids both in the kitchen and front office departments of hotels which have slightly changed the skill requirements of the industry. A major change has been the advent of automatic elevators which has almost completely eliminated elevator operator jobs. Other equipment which has been installed, such as bookkeeping machines or automatic dishwashers has made the work less onerous but has not greatly affected the skill levels necessary to do the tasks.

There are no turnover figures compiled for this industry and personnel people say that it is impossible to generalize about turnover problems. Certain occupations, such as dishwasher, porter, chambermaid, and other low skilled, low paying jobs are problems, particularly in the urban areas. As one source puts it:

> "Characteristic of a large number of hotel and restaurant employees, especially in recent years, is their tendency to float from one job to another...Many hotel and reataurant employees lack any real motivation for their work other than economic necessity. Many regard their jobs merely as temporary positions until marriage or something better comes along."*

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* Lundberg and Armatas.

Many of the hotel officials contacted during this study readily admitted that the industry is not noted for its use of up-to-date management techniques. Long range personnel planning has not been a tool employed to project and meet future manpower needs. Increasingly, though, management and union officials, at least those involved in the larger hotels and chains, are becoming concerned with trying to find ways to overcome their manpower problems. This interest has, in part, been stirred by the National Alliance of Businessmen's hard core effort. Thus, as a result of this program one major hotel has installed a job counselor in the employee's cafeteria during meal hours who is available to talk to any employee about his job. This person has a listing of all available hotel job openings and acts as liaison between the employees and management concerning employees' bids for job vacancies. Other efforts are taking place; but by far potentially the most important is the joint union-management training agreement discussed earlier. The extent of its eventual significance can only await its implementation.

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FOREIGN TRAINING AND UPGRADING EFFORTS

Since it might be expected that other industrialized nations face upgrading issues similar to those in the United States, a limited effort was made to accumulate information on the manpower programs of five countries -- Japan, the U.S.S.R, Sweden, West Germany and the United Kingdom.

Because there was no field work envisioned for this portion of the study the information is largely drawn from library research and deals mostly with training, not with the selection process. The literature on this subject available in the U.S. is rather thin and heavy reliance is made on a series of works published by The International Labour Office. It has been suggested that the research library of that organization in Geneva is far more complete and future investigation on this subject might be directed to that facility as well as to on-site inspection of the programs in the particular countries.

Japan

Japan's manpower structure differs greatly from that of western countries. In most large plants there are two types of workers, regular and temporary. The regular workers are further subdivided into "standard" and "half-way." Standard workers come to a firm directly from school and will likely be employed throughout their working life by that firm. All regulations governing working rules, conditions of employment and pay are made with these workers in mind.

The half-way workers have acquired some degree of skill in other companies (perhaps as a standard worker) before joining their current employer. They are regular workers and can expect to be employed until retirement, but their salary, conditions of employment, promotions and training are less favorable than those provided for standard workers.

Temporary workers are hired for peak production periods and do not enjoy most of the privilege of the regular workers.

> "With respect to work assignments, the job of a regular worker is not dependent on the skill he learned at school. Instead, enterprises /firms/ train workers for the required skills in their own training facilities. The worker's degree of skill is therefore measured by and is a result of his length of service. An employer expects a certain adaptability on the part of his workers, who are not expected to stick to a single trade however much it may appeal to them."*

Training in industry is provided for all students who do not go on to college. In smaller companies employees are trained on the job by an experienced senior employee. In almost all large establishments and a great many of the medium sized ones, systematic vocational training, generally off-the-line and lasting between two and three years, is carried out in facilities provided by the employer. The government gives financial assistance and provides materials for the schools. The school curricula must be approved by the government under Japan's Vocational Training Law.

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* Manpower Adjustment Programmes: III Canada, Italy, Japan, (Geneva, Switzerland: International Labour Office, 1968).

The Japanese Ministry of Labor in 1965 surveyed some 7,000 private manufacturing firms and found that the ratios of expenditures on education and training programs to total monthly cash earnings of employees were 0.4% for all firms and 0.8% for those who employed more than 5,000 regular workers.

The U.S.S.R.

There is a close integration of the educational and the industrial systems in the Soviet Union. The school is seen as the first step in preparing the individual for a productive life in the country's economy. Its objective is to provide a basic and general knowledge of technical subjects and to this end the first four years of school contain classes in manual work and instruction in the art of simple tools. These vocational courses continue for the next three years, along with instruction in the operation of such machines as drills and lathes, and the making and interpreting of simple drawings. Once these eight grades are completed a student may, based on his interests and ability, choose to continue his schooling or go directly to work.

Further schooling for those who want to become skilled production workers includes attending a technological vocational school. These technical schools are closely allied with operating companies which provide production materials and guidance on latest technologies, as well as remunerated employment for the pupils upon graduation.

Despite the large dose of vocational training provided by the educational system, apprenticeship is the most widespread form of initial skills instruction. The training, contractually arranged between management and the trainee, is conducted by skilled trades personnel at the work site.

Upgrading programs have been developed which serve to assist the worker in learning new and more complex skills. The programs vary with the complexity of the occupation, but ordinarily do not exceed three months if the student is enrolled full time, or six months if he combines training with his production job. Promotion priority goes to those who successfully complete the training. The schooling is financially supported by the by the U.S.S.R. central government and local governments.

Sweden

Sweden requires 11 years of compulsory education after which pupils may continue their studies in short curriculum schools (junior colleges) or vocational training schools. Transfer between these two types of institutions is relatively simple and common.

One important aspect of the Swedish school system's effort to prepare its students for work is the practice of allowing all eighth grade students to spend a period of three weeks working in industry. Through the schools' vocational counselors and in cooperation with the local placement office of the labor exchange, students ordinarily are placed in jobs for which they have shown interest.

On-the-job training is still the most common form of instruction given new entrants to the labor force. In recent years this kind of training has become better organized and planned. The large firms have established training systems and developed their own programs, while national employer associations, organized along industry lines, provide services which assist smaller firms in planning programs, drafting syllabi, developing job instructions, writing textbooks and teaching instructors.

Adult education in vocational as well as non-vocational subjects is encouraged by the State through grants to educational institutions, which offer full-time or part-time courses, or evening classes, in technical schools. The Swedish government is committed to providing free educational facilities for students and trainees at all levels who wish to further their education or upgrade their skills. The government also grants, to all those above the age of compulsory schooling, stipends and loans to cover living expenses while in school, and allowances to unemployed adults who are enrolled in retraining and upgrading courses to cover living costs for themselves and their families.

Even with these programs the Swedish economy suffers from severe skill shortages. To remedy this,

> "It has been proposed that the National Labour Market Board should start upgrading courses for the benefit of workers employed in undertakings which will need certain types of skilled workers not available on the labor market. These courses would be started at the request of undertakings or of the placement office concerned with a view to enabling workers already on the staff to fill vacant jobs in the undertakings. ... Trainees would be selected jointly by the employer and the workers, and would be obliged to return to the undertaking after the end of the course. The upgrading courses would be financed by the Labour Market Board, while the undertakings would pay the trainees the difference between their usual wages and the retraining allowances." *

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* Manpower Adjustment Problems: II, Sweden, USSR, U.S., (Geneva, Switzerland: International Labour Office, 1967).

Federal Republic of Germany (West Germany)

The educational systems in West Germany require eight or nine years of compulsory schooling followed by a minimum of three years of compulsory part-time schooling at a vocational school during the period of apprenticeship or during any other form of in-plant training.

The West German industrial system places heavy emphasis on practical training at the work place. Apprenticeship training, which is the prime training method, is organized and administered almost exclusively by the private sector.

The bulk of this training is privately financed, and many companies also teach trades which the employee may not use immediately but which will provide a skill bank for the mutual benefit of future management needs and the worker's ability to progress.

Unions have taken an active part in the skills development of their members and several have established large training centers throughout the country. However, these are attended voluntarily, and the worker must go either part time or leave his job for full-time instruction.

The West German government established the "Federal Programme for Further Vocational Training" in 1959. Under this law, wage earners who have had some industrial experience (2 to 7 years) may take further training in various outside institutions. Training may be full-time schooling. evening or Saturday classes or correspondence courses. Governmental grants are made to encourage this activity and to ease the burden of cost that is borne by the individual worker. So far, more than 90% of the grants made under this program have been for full-time training.

Private industry, however, continues to shoulder the bulk of the training costs, which have been estimated by one observer to run between $5 billion and $6 billion a year.

United Kingdom

Britain's educational system does not include vocational training within the general curriculum during the years of compulsory education.

Apprenticeship is the usual method of training for the young entrant to a craft. Because of skills shortages in the face of increased automation, many firms have resorted to various methods such as using senior employees as instructors, employing instructors who teach in special schools run for their employees, or combining in-plant instruction with courses at technical colleges.

Since the passage of the Industrial Training Act of 1964, this process of post-entry level has been further developed and formalized into a national policy. The training in each industry is centrally planned and directed under auspices of an Industry Training Board. The activities of each board are financed through a levy which is paid by all employers. The amount of this levy is based on the size of a firm's payroll. Money paid to the Board may be reclaimed by submitting proof that satisfactory training schemes have been carried out, and grants are given those firms with proven programs. The Boards also have been empowered to compel employers to draw up estimates of skilled manpower requirements for the future. As of 1967, 23 industry boards have been established covering almost one-third of the work force.

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